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A POST-MORTEM ON TRANSITION PREDICTIONS OF NATIONAL PRODUCT[1]

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WE ALL recall clearly the headlines in last autumn's press, declaring that "Government economists predict 8 million unemployed by 1946." At the same time, the newspapers were telling us of congressional action to lower corporate and personal income taxes, administrative action to relax ceiling prices on construction materials, lobbyists' pressure to weaken the strength of price controls, and many other inflationary policies. We now find ourselves in the first half of 1946 with about three million unemployed and facing one of the greatest inflationary pressures that we have ever experienced. The economists who were warning us of a deflationary danger during the early months of the postwar transition period should have been stressing precisely opposite economic policy.

There is no question that they made a mistake, but there are many questions concerning why they made the mistake. Was it a result of their methodology? Was it a result of their intuitive judgments? Was it a result of their theoretical economic systems? It is very important to answer these questions because many economists would discredit much more than the wrong estimates themselves. Some economists claim that the wrong predictions show that the entire theoretical economic model and the methodology of forecasting are wrong. We shall attempt to show that such claims are unfounded and that errors in forecasting may have nothing to do with the validity of many of the underlying theories. There are some economists who made more accurate predictions with other methods, but we shall also attempt to show that these more accurate predictions do not prove that their methods are superior to those that failed.

The current controversy contains several "red herrings," which should be disposed of before we can get at the truth of the matter. In the first place, many of the estimates for the posttransition period are loosely quoted in reference to the transition period. The estimates of J.

[1] Will be circulated as "Cowles Commission Paper," new ser., No. 18. The author is indebted to Trygve Haavelmo, Leonid Hurwicz, Tjalling Koopmans, and Jacob Marschak for constructive criticism. This paper was written during the tenure of a postdoctoral fellowship of the Social Science Research Council.

Mosak[2] for 1950 have frequently been mentioned, along with those pertaining to 1945, 1946, and 1947. While the estimates for the latter years are proving to be wrong, the former may still be correct, unfortunately. Second, the estimates of gross national product and of unemployment should be separated. It is possible for economists to predict output more closely than the difference between labor input and the labor force. Their models actually are intended to forecast gross national product, and their estimates of unemployment are a by-product. The validity of their models must be judged on the basis of the accuracy of their estimates of output rather than of unemployment.

It is not implied that unemployment estimates are unimportant. Our objective should be to forecast unemployment, but some of the steps in reaching that objective may be independent of others. A complete model and a good model will enable us to forecast both the level of output and the level of unemployment. In the abnormal conditions of the transition period, we may have to be satisfied with partial results.

THE METHOD

The customary model for prediction can be called the simplest Keynesian model: Savings as a function of income equals autonomous investment.[3] This model has been slightly modified for the particular characteristics of the transition period, but the modifications are not basic. The model can be written as

$$GNP = C(GNP) + \bar{I},$$

where GNP = gross national product; the function $C(GNP)$ is the consumption schedule; and $\bar{I}$ = autonomous investment.

On the basis of a priori information, economists attempt to estimate $\bar{I}$, and from numerical data over a long-time period they attempt to get a statistical approximation of the function $C(GNP)$. For the transition estimates the common practice is to include in C only nondurables and services exclusive of paid rentals. Durable consumer goods and rents are classed with $\bar{I}$.

The function $C(GNP)$ is estimated in two steps. First, statisticians calculate the relation between consumption and disposable income, $C = C^*(Y)$. The difference between GNP and Y is governmental revenue + business reserves[4] + corporate savings − transfer payments. The function $C = C^*(Y)$ is a structural behavior equation which can be derived, in a general form, from rational economic behavior patterns. The function $C(GNP)$ depends upon the relation between Y and GNP, a relation which is based, not on economic behavior patterns, but on autonomous governmental action with respect to the setting of tax rates, unemployment compensation rates, etc. From their knowledge of the autonomous parameters, such as tax rates, technicians of the Bureau of the Budget have very carefully computed $Y = Y(GNP)$ for different periods of the transition. For each tax system they obtain a different relation between Y and GNP. The statistician then substitutes the appropriate au-

[2] "Forecasting Postwar Demand," *Economic Reconstruction*, ed. S. Harris (New York: McGraw-Hill Book Co., Inc., 1945).

[3] The terms "autonomous" and "exogenous," and their respective opposites, "induced" and "endogenous," will be used synonymously in this paper. They are all commonly found in the recent economic literature. Autonomous variables are those economic quantities that are determined outside the system of narrow economic forces. They are the result of political, sociological, institutional, technological, or natural forces only. Eventually we may hope to develop a complete social theory in which there are no autonomous variables except those like weather.

[4] Mainly depreciation charges.

tonomous function $Y = Y(GNP)$ into the statistical behavior equation $C = C^*(Y)$ to get $C = C(GNP)$. The parameters of the Y-function, and hence of the C-function, will be different for each period of the transition, depending upon the autonomous factors.

Our Washington forecaster then computes, item by item, the components of $\bar{I}$. For example, he gets information from the Bureau of the Budget on governmental expenditures, from Commerce Department questionnaire surveys on capital formation, etc. He makes allowances for production bottlenecks in supplying a virtually unlimited demand for some components, and he takes into account the quantity of surplus government property that will be used to satisfy some of the autonomous demand in the transition period. The latter correction should be subtracted from capital formation because no income is created by transferring ownership on already existing property.

This is the method. Let us see how it works.

ACCURACY OF THE ESTIMATES

Some of the better-known estimates among economists are those of E. E. Hagen, assisted by Mrs. Nora Kirkpatrick, both of the Office of War Mobilization and Reconversion. These estimates were presented in a paper before the Conference on Research in Income and Wealth in November, 1945. The author saw them at an earlier date and hazards the guess that they had some influence on governmental policy declarations in the days just following the end of the war. In Table 1 the Hagen-Kirkpatrick estimates are compared with the official observations for the fourth quarter of 1945, published in the *Survey of Current Business*, February, 1946, page 7.

It is immediately obvious where this forecast failed—in the prediction of consumer expenditures, particularly expenditures on nondurable goods. The forecasts of most of the autonomous items of government expenditures or capital formation are only slightly below the observations, and these errors together do not contribute so much to the total error as does the error in consumption alone.

The order of magnitude of the error involved is great, and, what is more serious, it is great enough to lead to disastrous policy recommendations. The predicted *GNP* of $164.5 billion should call for an inflationary policy, but this is just the opposite of the policy that was needed.

The forecasts for the first quarter of 1946 are as wide of the mark as are those for the fourth quarter of 1945, and it is generally conceded that these forecasts will continue to be wrong for some time in the future. For example, Hagen and Kirkpatrick predicted *GNP* of $161.8 billion and unemployment of 8.1 million for the first quarter of 1946, while the *Sixth Report by the Director of War Mobilization and Reconversion* estimates *GNP* at approximately $180 billion and unemployment at approximately 3 million. A very recent (May, 1946) press release of the Commerce Department puts *GNP* at $183 billion for this period.

EXPLANATIONS OF THE FORECASTING ERROR

Errors may arise in the forecasting procedures of the Washington economists through three sources: (1) the autonomous variables may be set at wrong levels; (2) variables may be improperly classified, according as they are autonomous or induced; and (3) the estimates of the structural behavior equations involving the nonautonomous variables

may be incorrect from an economic theoretical point of view and from a statistical point of view.

The first type of error does not appear to be serious from the data presented above. Furthermore, any method of forming economic policy judgments is subject to this error; consequently, the econometric method should not be discredited for wrong forecasts of autonomous variables. In any case, there is no serious problem in connection with this source of error.

Where induced variables were classified as autonomous in the transition forecasts, no serious harm resulted. It is often possible to obtain some of the correct results and yet commit the second type of error. If induced variables are set at autonomous levels that agree with the observed facts, this error will not, by itself, lead to an error in the estimate of *GNP*, but there will be an error in the evaluation of various multipliers in the system. The second source of error will lead us to estimate incorrectly the *increase* in *GNP* resulting from a given *change* in government spending. We may claim that the Hagen-Kirkpatrick estimate committed an error in classifying construction, inventories, and producers' equipment as autonomous variables; however, this error did not account principally for their low forecasts, since their autonomous variables were nearly equal to the observations.

TABLE 1

GROSS NATIONAL PRODUCT: SEASONALLY ADJUSTED ANNUAL RATE

	Hagen-Kirkpatrick Estimate (In Billions)	U.S. Dept. Commerce Actual Observations (In Billions)
Gross National Product	$164.5	$182.8
Government expenditures	55.5	57.7
Federal war	39.7	43.3
Federal nonwar	8.0	6.5
State and local	7.8	8.0
Private gross capital formation	12.8	14.2
Construction	2.8	3.7
Producers' durable equipment	6.0	7.2
Net inventory change	4.0	1.6
Net exports	0.0	1.8
Consumer Expenditures	96.2	110.9
Durable goods	9.0	8.4
Nondurable goods	57.7	69.5
Services (excluding rent)	23.5	33.0
Rent	6.0	
Disposable income	119.9	137.3
	(In Millions)	(In Millions)
Civilian employment	46.1	51.7
Armed forces	10.8	9.2
Unemployment	6.3	1.8
Labor force	63.2	62.7

Most critics will agree that the consumption function is incorrect,[5] i.e., that the third source of error is prominent. But the critics are strongly divided on the reasons why the consumption function is incorrect. The consumption function may be incorrect because it was determined statistically in isolation from the rest of the system. The statistical parameters were calculated from least-squares regressions of nondurable consumption on disposable income and of service consumption on disposable income. No account was taken in these regressions of the interrelationships between these variables and other equations of the system.[6] It is not known whether this type of error will lead to an overestimate or an underestimate of consumption.[7] At least as important as the statistical errors, however, are the errors of economic theory. It is a real problem to construct a satisfactory economic model, and the pages immediately following will deal with this problem more carefully.

There are undoubtedly many arguments advanced to explain why the consumption of nondurable goods is high, relative to the pre-war regression between this type of consumption and disposable income. We shall discuss arguments that are either plausible or commonly made.

THE FACTS

In order to make clear the various reasons advocated for changing the Hagen-Kirkpatrick model, it will be illuminating to consider, in detail, the reasons for the failure of their method. In the *Survey of Current Business* (February, 1945, p. 5) there are three graphs which shed much light on the mystery. These three diagrams show the scatter plots between disposable income and three types of consumer expenditures—durables, nondurables, and services. All the variables are aggregates measured in current dollars. It will be noticed that during the war years the observations for nondurable expenditures were on the 1929–40 regression, while the observations for durables and services were, for obvious reasons, far below the regression. The forecasters reasoned that nondurables, which had maintained their peacetime relation to income during the war, would maintain that relation during the postwar transition and that services would return to the peacetime relation for all categories except paid rentals, while durables would remain below the corresponding regression line. Thus they made durables plus paid rentals autonomous, and other services plus nondurables induced, according to the pre-war regressions in relation to disposable income.

[5] Some, however, will claim that it was only temporarily incorrect during the special case of the postwar transition period and that it will be correct when we settle down again to a peacetime economy.

[6] For a popular exposition of the ideas underlying statistical estimation in economic systems, see the article by T. Koopmans, "Statistical Estimation of Simultaneous Economic Relations," *Journal of the American Statistical Association*, XL (December, 1945), 448–66.

[7] The author's colleague, T. Haavelmo, has shown in a forthcoming article that the estimate of the marginal propensity to consume calculated as the least-squares regression of total consumption on disposable income is greater than the estimate obtained when all the equations of the simple Keynesian model used by the forecasters are taken into account simultaneously. The estimate of the constant term in the linear consumption function is greater by Haavelmo's method than by the customary least-squares method. He did not deal with the problem of estimating the parameters of the demand functions for nondurables, durables, and services separately. His results are very interesting, especially because the pessimistic forecasts of transition *GNP* have often been criticized for being based on a model with a marginal propensity to consume that is too low.

As matters developed, nondurable consumption expenditures were far above the regression for the fourth quarter of 1945, while services and durables were still below. These are the facts; the correct explanation of the error must show why the consumption of nondurables was so far above the pre-war regression line.

DEMOBILIZATION

It must be remembered that consumer expenditures cover only civilian expenditures for consumer goods and services. We may have experienced a temporary deviation from established patterns by the sudden injection of demobilized servicemen into our civilian population over a very short period of time. While it may seem possible that the 8.5 million men restored to civilian life during the period between V-J Day and March 31, 1946, would have caused an abnormally high demand for nondurable consumer goods, the argument is not unambiguously established. It is true that a sudden increase of 8.5 million civilian mouths to feed and backs to clothe may very well have led to a temporary increase in the civilian consumption of nondurables, but their disappearance from civilian life during the pre-war and the war years did not cause an abnormally low demand for nondurables. The demobilization process was strongly concentrated in a few months and thus may account for asymmetric behavior patterns, as compared with the period of induction.

Demobilization is a special factor. If it has accounted for a large underestimate of nondurable consumption, we should not be led to alter the statistical models for the post transition period on account of their failures during the transition.

INSTABILITY OF THE CONSUMPTION FUNCTION

Some economists claim that the consumption function changes position radically in different economic situations, making it very difficult to forecast future consumption on the basis of past relationships between consumption and other economic variables. A recent exposition of this hypothesis is that of W. S. Woytinsky,[8] who claims that there is a different consumption function during depression and during prosperity. With our previous notation, this may be expressed, in a simple example:

$$C = a_0(Y) + a_1(Y)\,Y\,,$$

where

$$a_0 = b_0 + b_1 Y\,,$$

$$a_1 = c_0 + c_1 Y\,;$$

or

$$C = d_0 + d_1 Y + d_2 Y^2\,.$$

This function[9] has in simple form the properties stressed by Woytinsky, but there is so little curvature in the past relationship that there is very little gain in introducing the quadratic term. Either by the above simple scheme or by introducing additional variables (including time) into the consumption function, we can test the hypothesis that the consumption-income relation remains substantially valid over long periods of time. As yet, no econometrician has ever refuted the hypothesis. We find much evidence of this stability in both time-series and family-budget data.

[8] "Relationship between Consumers' Expenditures, Savings, and Disposable Income," *Review of Economic Statistics*, XXVIII (February, 1946), 1–12.

[9] In a more general case, $C = f(Y, a_0[Y], a_1[Y], \ldots, a_n[Y])$, where $a_0, \ldots, a_n$ are certain parameters of the consumption function which fluctuate cyclically. If f, a_0, and a_1 are linear and all other a's vanish, we get the simplest representation of this hypothesis, given in the text.

Woytinsky has another method of proving his claims. A complete discussion of his methods involves some digression, but the establishment of the true consumption function is so important in forecasting that we must rid the field of false alternatives. Woytinsky claims that we get one savings function if we use the data for years that he defines as "depression years" and another savings function if we use the data for years that he defines as "prosperity years."[10] This is a scientifically unacceptable attitude because it makes the results depend entirely on personal judgment. If we define prosperity as high national income and depression as low national income, then national income should be a variable in the consumption function. If we think that the parameters vary over the business cycle, then we should make the parameters functions of income. But no econometrician is allowed to choose those observations which yield predetermined results. If the savings-income relationship has a *systematic* error when fitted to the data of the entire period covering both prosperity and depression (Woytinsky's point), then the residual variation not explained by the calculated savings function will have a systematic pattern which is not random. The duty of the econometrician is then to introduce other *objective* variables until the residual variation does become random. Woytinsky never examined his residual variation. It is possible to construct savings functions which have random residual variation over a period which covers all phases of the business cycle. These are the functions which must be considered as candidates for the true savings function and not those fitted to Woytinsky's personally selected points.

It should be pointed out that there are sometimes objective criteria for rejecting observations. We may agree beforehand that economic behavior patterns are distorted in wartime; hence we may cast out all observations pertaining to war years. There is, however, little room for personal judgment in this case because we usually know when we have a war economy and when we have a peacetime economy.

Woytinsky has another tool with which he tries to demonstrate the instability of the consumption or savings function. He correlates the ratio of savings to income with income and concludes that different regressions hold for different periods. If we write

$$\frac{S}{Y} = e_0 + e_1 Y,$$

then

$$S = e_0 Y + e_1 Y^2;$$

thus we find that there is no constant term in the savings function. The extremely poor correlations that Woytinsky finds between S/Y and Y should actually lead him to consider the alternative hypothesis that there is a constant term in the savings function instead of his conclusion that the savings function is not stable. He bases his argument on mechanical least-squares fitting to observations, which gives empirical equations that are not acceptable on any statistical grounds.

There is a good reason for believing that there is a significant constant term in the savings function. The aggregate savings function is obtained by summing all the individual savings functions. Sup-

[10] It is completely trivial to distinguish between the consumption function and the savings function since the two are related by a simple definition. Some writers seem to think that they get more information from the savings-income data than from the consumption-income data.

pose an individual has zero income. Will he consume anything? Of course, he will have positive consumption (negative savings), which represents his minimum subsistence level. Similarly, the community, as a whole, will show a positive expenditure for zero income. Woytinsky's saving-rate functions fail to show this constant term. A glance at family-budget data on consumption by income class shows very clearly that people spend more than their incomes in the low-income classes and that the consumption function has a positive intercept for zero income.

We must look further for a satisfactory explanation of the failure of the Hagen-Kirkpatrick consumption estimates.

LIQUIDITY

It has been suggested that the Keynesian models of macroeconomics be amended by introducing cash balances or, more generally, liquid assets as a variable into the savings (consumption) function.[11] The arguments about the relation of cash balances to savings are being revived again today, although for slightly different reasons than were put forth originally. Several economists claim that consumption is being maintained at an abnormally high level now because people have accumulated huge amounts of cash and liquid securities (in the form of war bonds). It is true that there is an observed correlation today between high levels of consumption and high levels of liquid assets, but it has not been proved that the structural savings function contains liquid assets as an important variable.

The relationship between consumption and liquid assets is a hypothesis which must be tested from the available data. To test the existence of the consumption-income relationship, we examine the time-series data and the family-budget data. In the case at hand, we are very unfortunate in having no family-budget data and must rely on time-series data plus some recent surveys that have been conducted to discover what people intend to do with their war bonds and cash balances.

First, we must establish the theoretical principles from which we construct our consumption functions. A simple theory of consumer behavior is that the individual maximizes some preference function which depends on his consumption of all types of present and future goods, subject to the constraint that current spending and saving (spending on future goods) just exhaust individual income. It is well known that this maximization procedure leads to the individual demand equations for each commodity as a function of the prices of all goods and the budget constraint, which is income. The prices of future goods are related to present prices by the interest rate, so that the independent variables in the demand functions are present prices, the interest rate, and income. If these individual demand functions are approximately linear, we may aggregate them over all commodities and all individuals to find that total consumption of present goods depends upon the price level of consumer goods, the interest rate, and the level of the community's disposable income.

The consumption functions that are calculated today are based on this principle, except for the fact that they allow the income term to dominate the price level and the interest rate. They use only the expenditure-income correlation. In some cases prices are introduced as a deflator, i.e., they correlate real consumption and real income. This procedure is

[11] See, e.g., A. C. Pigou, "The Classical Stationary State," *Economic Journal*, LIII (December, 1943), 343–51.

correct if the demand equations derived from the basic theory of consumer behavior are homogeneous of order zero in prices, as is commonly assumed.[12]

One obvious way to introduce liquid assets into the theory of the consumption function is to modify the budget constraint. Instead of maximizing satisfactions, subject to the condition that spending plus savings exhausts income, we can maximize satisfactions subject to the condition that spending plus savings exhausts some function of income and accumulated liquid assets. Alternatively, we may define the utility function to depend upon the consumption of present and future goods, the holding of securities, and the holding of cash. We may now proceed to maximize this function, subject to two constraints: (1) spending plus savings equals income, and (2) the value of securities plus cash equals historically accumulated savings plus current savings.

In these cases the maximization process leads to demand equations with the new constraining factors as variables. In either case, both income and historically accumulated savings enter as independent variables.

This is the theoretical foundation of our hypothesis. Let us now examine the data to see whether or not it is true.

Correlations between consumption and cash balances from time-series data of the interwar period are nil, if the relationship between consumption, income, and time trend is taken into account. This same result was obtained independently by J. Mosak.[13] It is true that cash balances were much smaller in the interwar period, but so was the whole scale of operations in the economic system. We must admit, however, that liquid assets are extremely large today even in relation to the other variables of the system. It is also true that, in the past, assets were highly concentrated in a few hands. It is not known whether or not they are more democratically held today, but it is known that there is still much concentration. For example, governmental surveys[13a] show that the upper 10 per cent of owners of liquid assets hold 60 per cent of the value of all liquid assets. The upper 20 per cent hold 77 per cent, and the lower 50 per cent hold only 3 per cent. It is also shown in these reports that the distribution of ownership of liquid assets was much less equitable than was the case for 1945 incomes, if we measure the degree of equitability by the area under the Lorenz curve. The people who own these assets are not those whose spending habits are likely to be influenced greatly by these holdings. When asked about their intentions with regard to the use of E bonds, only 5 per cent of all holders answered that they would use the proceeds for consumer expenditures. It is also estimated that these 5 per cent would spend only about $1.5 billion. Furthermore, only 5 per cent of all holders intend to use their E bonds for any purpose in 1946. Asset holders appear from these questions to be much more willing to spend bank deposits than E bonds in the near future. However, the anticipated expenditures of all types of assets on consumer goods should not be large enough to cause much of an error in

[12] This homogeneity property means that, if prices and incomes are all changed in the same proportion, the demand for consumer goods will remain invariant.

[13] See his article, "National Budgets and National Policy," *American Economic Review*, March, 1946, pp. 20–43.

[13a] Some of the results of the surveys are found in "A National Survey of Liquid Assets," *Federal Reserve Bulletin*, June, 1946, pp. 574–80. The full report can be obtained from the Division of Program Surveys, Bureau of Apricultural Economics, U.S. Department of Agriculture.

the aggregate consumption function, relating consumption to income alone.[14] A future study of the influence of asset holdings on spending out of *current income* has been promised by those who conduct these surveys, and these results may be very important in testing the hypothesis that consumption depends upon the holding of assets as well as income. There is much more information in these reports, but it all points, thus far, to the same conclusion, namely, that the influence of liquid assets on consumption will be small. The hypothesis of the influence of liquidity is plausible and worthy of consideration, but it has not yet been shown to be correct.

SAVING VERSUS SPENDING

One of the simplest theories of consumer behavior is the following: Individuals decide on the basis of their income how much they will spend and how much they will save (not spend). This behavior pattern means that, in a period when there are shortages of certain types of consumer goods, people will spend on available goods that which they are unable to spend on unavailable goods. Thus, today, according to this theory, we may argue that people spend on nondurables because they cannot buy durables or services. Furthermore, we say that the "spillover" from unavailable goods to available goods is just enough to put total expenditures on the normal expenditure-income regression. During the war there were shortages, but civilians were not free to compensate by spending extra sums on available nondurables because of price control, rationing, and patriotic saving drives. Instead of arguing that the wartime experience of spending on nondurables according to the pre-war regression between these expenditures and income gives us confidence in extrapolating this regression into the transition period (the method of Hagen and Kirkpatrick), we should argue that this wartime phenomenon was accidental. If there had not been artificial restraining factors, consumers would have been spending on nondurables above this regression, as was the case in the last quarter of 1945. In this latter period we find that consumers spent funds on nondurables above the regression line by just that amount which made total expenditures lie almost on the pre-war regression between total consumption and income.

It is one thing to say that there is a stable peacetime relationship between total consumption and income, and something else again to say that there is a stable relationship between each of several categories of expenditures and income. The forecasters adopted the latter formulation and ended up with poor forecasts. *If the Washington economists had used the total consumption function fitted to the data for 1929–41, they would have been nearly correct in their forecasts for the fourth quarter of 1945.*[15]

[14] The demand for residential housing (investment) may be very differently affected.

[15] Mosak's aggregate consumption function and Hagen's estimates of autonomous investment and governmental expenditures generate a GNP o $178 billion for the fourth quarter of 1945, very close to the observed figure. There are some compensating errors in this calculation, however, because the autonomous items are slightly below the observed figures, while Mosak's consumption function lies slightly above the observed point. If we use the correct values of the autonomous variables and Mosak's consumption function, the calculated value of GNP is above the observed value. The exact figure is not give here because it is necessary to know the *true* values of the autonomous *parameters* in the function $Y = Y(GNP)$, which have not yet been estimated. It is worth noting that Haavelmo's estimate of the consumption function, mentioned above, and the true values of the autonomous *variables* generate a GNP of $187 billion for the fourth quarter of 1945, which is closer than the results obtained by any other method yet tested.

The saving-spending hypothesis of consumer behavior is plausible and is not refuted by the factual data, although we need more observations before we can be certain of its correctness. This hypothesis is certainly confirmed for the pre-war data and also for the first transition observations, but this is not sufficient to establish its validity.

RELATIVE PRICES

There is yet another explanation of why expenditure-income relationships for various types of commodities cannot be used independently for projection into the future, i.e., why the regression between nondurable consumption expenditures and disposable income does not hold in the transition period when there are bottlenecks in the durable consumer-goods market.

The theory of consumer behavior tells us that the demand for each good in the system is a function of all relative prices, interest rates, disposable income, and possibly cash balances or general liquid wealth. Let us neglect, as a first approximation, the influence of interest rates and liquid assets. An aggregative approximation to our demand functions for durable goods, nondurable goods, and services is

$$\frac{C_1}{p_1} = a_{01} + a_{11}\frac{p_1}{p} + a_{21}\frac{Y}{p},$$

$$\frac{C_2}{p_2} = a_{02} + a_{12}\frac{p_2}{p} + a_{22}\frac{Y}{p},$$

$$\frac{C_3}{p_3} = a_{03} + a_{13}\frac{p_3}{p} + a_{23}\frac{Y}{p},$$

where C_1 = per capita expenditures on durables, p_1 = price of durables, C_2 = per capita expenditures on nondurables, p_2 = price of nondurables, C_3 = per capita expenditures on services, p_3 = price of services, p = price of consumption as a whole, and Y = per capita disposable income.

Suppose that there are shortages of durable goods so that we assign the value $(C_1/p_1) = (\overline{C_1/p_1})$ to this category. The estimates of C_2/p_2 and C_3/p_3 from the last two equations cannot be made from the income term alone but must take into account p_2/p and p_3/p, the relative prices, which will, in turn, be influenced by the fact that durables are scarce. The coefficients of the relative-price terms are all negative. If, in the transition period, the prices of services and durables are extremely high relative to nondurables, there will tend to be an excess demand for nondurables above the consumption-income regression. We can hire domestic servants today, but only at a price. The durable goods which are almost nonexistent have virtually infinite prices. We should expect the relative-price term to favor the purchase of nondurables, as has been the case to date.

The general proposition that is to be made in this section is the following: We cannot estimate the consumption of a particular class of commodities from the relationship to the income variable alone but must consider relative prices as well. The Hagen-Kirkpatrick estimates are derived from the simple income regressions by type of commodity, which are not correct demand equations.

For the period 1919–39, there are time series[16] on all the variables in the preceding equations which enable us to estimate the coefficients numerically. The actual numerical size of the coefficients need not be taken too seriously, since they are known, in general, to be biased[17] estimates, calculated without a knowl-

[16] See the appendix below.

[17] An estimate of a parameter is biased if its mathematical expectation does not equal the parameter.

edge of the entire system. They are single-equation, least-squares estimates which have systematic bias no matter how large the sample used. However, they do show that there is a strong correlation between consumption and relative prices when the consumption-income correlation is taken into account. This is the main point. In the future we can hope to use methods which produce estimates that are unbiased for sufficiently large samples, but the present figures indicate roughly the orders of magnitude of the parameters involved.

The least-squares equations based on the observations 1919–39 are

$$\frac{C_1}{p_1} = 118.53 - \underset{(15.26)}{125.96}\frac{p_1}{p} + \underset{(.0236)}{.1151}\frac{V}{p} - \underset{(.1161)}{.6468}\,(t-1929), \quad \bar{R}=.98, \quad \bar{S}=\$2.97, \quad \frac{\delta^2}{S^2}=2.08,$$

$$\frac{C_2}{p_2} = 204.43 - \underset{(14.50)}{96.70}\frac{p_2}{p} + \underset{(.0316)}{.2843}\frac{V}{p}, \quad \bar{R}=.94, \quad \bar{S}=\$6.60, \quad \frac{\delta^2}{S^2}=1.87,$$

$$\frac{C_3}{p_3} = 68.32 - \underset{(19.30)}{46.35}\frac{p_3}{p} + \underset{(.0564)}{.2551}\frac{V}{p} + \underset{(.5243)}{.8165}\,(t-1929), \quad \bar{R}=.73, \quad \bar{S}=\$11.15, \quad \frac{\delta^2}{S^2}=1.63.$$

The figures in parentheses below the regression coefficients are standard errors.

The principal thing to note is that a low relative price of nondurable goods in the transition period could easily account for the observed excess purchases above the consumption-income regression. Furthermore, the least-squares estimate of the marginal propensity to consume, obtained by adding a_{21}, a_{22}, and a_{23}, is much smaller than the estimate obtained from the simple correlation between total consumption and total income.

The relative-price theory of this section need not be inconsistent with the saving-spending theory of the preceding section. We may reconcile them as follows: The three equations

$$\frac{C_1}{p_1} = a_{01} + a_{11}\frac{p_1}{p} + a_{21}\frac{Y}{p},$$

$$\frac{C_2}{p_2} = a_{02} + a_{12}\frac{p_2}{p} + a_{22}\frac{Y}{p},$$

$$\frac{C_3}{p_3} = a_{03} + a_{13}\frac{p_3}{p} + a_{23}\frac{Y}{p},$$

can be written as

$$p\left(\frac{C_1}{p_1}+\frac{C_2}{p_2}+\frac{C_3}{p_3}\right) = (a_{01}+a_{02}+a_{03})\,p + a_{11}p_1+a_{12}p_2+a_{13}p_3+(a_{21}+a_{22}+a_{23})\,Y.$$

Our method of construction of price and consumption aggregates leads to the following definition:

Total consumer expenditures

$$= C = p\left(\frac{C_1}{p_1}+\frac{C_2}{p_2}+\frac{C_3}{p_3}\right).$$

Consumption and income are measured in dollars per capita per year. The prices are index numbers with the base-year values equal to unity for 1934. The statistics $\bar{R}$ and $\bar{S}$ are corrected for degrees of freedom, and the statistic δ^2/S^2 is the ratio of the mean square successive difference to the variance of the residuals. The distribution of this ratio has been tabulated,[18] and we conclude from its size that we cannot reject the hypothesis that our residual variation is random.[19]

[18] J. von Neumann "Distribution of the Ratio of the Mean Square Successive Difference to the Variance, *Annals of Mathematical Statistics*, XII, 367–95; B. I. Hart and J. von Neumann, "Tabulation of the Probabilities for the Ratio of the Mean Square Successive Difference to the Variance," *Annals of Mathematical Statistics*, XIII, 207–14.

[19] The statistic used to test the randomness of the residual variation is not entirely satisfactory, on theoretical grounds, for our purposes, but it is the best indicator known to the author.

Hence we have

$$\frac{C}{p} = a_0 + \frac{a_{11}p_1 + a_{12}p_2 + a_{13}p_3}{p} + a_2\frac{Y}{p}.$$

If the data show that

$$a_{11}p_1 + a_{12}p_2 + a_{13}p_3 = \lambda p$$

then our equation will be

$$\frac{C}{p} = a_1 + a_2\frac{Y}{p},$$

which is the usual form of the consumption function. The test of whether the general price index is approximately proportional to the above specified linear combination can be carried out only after we have obtained unbiased estimates of the relevant parameters.[20] In any case, it is not evident that the saving-spending theory and the relative-price theory are contradictory.

Although the relative-price theory may indicate some of the reasons why the forecasts of national product were below the observed levels, it is hardly possible to make use of this theory for quantitative estimates. In order to estimate the different types of consumption during a period in which prices are autonomously fixed, we must have exact data on these fixed levels of prices, which are to be substituted into the demand equations. We must be able to estimate how much the consumption of nondurables will be increased as a result of the fact that the prices of nondurables are favorable, relative to other prices. Unfortunately, none of the published price indexes is satisfactory for this purpose at the present time. The published indexes were satisfactory in the pre-war years in order to establish the regressions, but they are completely inadequate now. In the first place, the practice among those who construct index numbers is to drop scarce goods from the index in such a way that there will presumably be no effect on the index. It is, however, the scarce durable goods and services which are extremely costly today. Weights may be changed because the quantities are completely different from the base-year quantities, but there is a big difference between an index with high prices at a low weight and an index which ignores these prices. The relative-price theory, as an explanation of high nondurable consumption, depends on the changed price relationship between the goods that are now scarce and those that are now available —changes that are not reflected in the published data.

There are numerous other grounds on which the official indexes are an understatement of the actual price levels. The agencies which compute the index numbers admit the existence of quality deterioration but, at the same time, classify this phenomenon as unmeasurable; consequently, there is a serious downward bias in the price index.[21] Other events, such as uptrading, the growth of black markets, population redistribution, etc., have led to an added bias in the price indexes.

The saving-spending approach is perhaps our best alternative at this time. It was shown above that the saving-spending theory, in constant dollars (real terms), may be equivalent to the relative-price theory for estimates of total national product. But it is difficult to use the saving-spending theory in terms of constant dollars because the general

[20] The least-squares estimates of a_{11}, a_{12}, a_{13}, when used as weights in the above formula for the price index, lead to a fairly stable ratio (λ) between the derived and the actual index. The annual figures for this ratio vary between $-.248$ and $-.284$, with a mean at $-.263$.

[21] This was one of the major points stressed by the C.I.O. in its criticism of the Bureau of Labor Statistics cost-of-living index.

price indexes are faulty. An empirical observation may be our salvation, namely, that statistical models couched in terms of constant dollars do not give very different results from models couched in terms of current dollars when there is no hyperinflation or hyperdeflation. If this empirical fact holds in the future, we can proceed, as was suggested above, by combining the aggregate consumption function in current dollars with the Hagen-Kirkpatrick estimates of the autonomous variables.

A TECHNICALITY

Recall that an important step in the Hagen-Kirkpatrick model is the estimation of the autonomous function $Y = Y(GNP)$, which enables us to pass from disposable income (the relevant variable of the consumption function) to gross national product (the relevant variable for the estimation of employment). This function was constructed by the Bureau of the Budget from information based on tax rates, unemployment compensation rates, and guesses as to the level of depreciation and corporate savings. If the function were correct, the substitution of the observed GNP for the fourth quarter of 1945 should give the observed Y. But we get

$$Y = 41.8 + .475\,(GNP)\,,$$

$$Y = 41.8 + .475\,(182.8)\,,$$

$$Y = 128.63\,.$$

The observed disposable income was 137.3. This error led to a downward bias in the final result for the estimate of GNP, but this error was less serious than the error of the underestimate of the level of the consumption function.

Hagen, in private correspondence, has pointed out the reason for this technical error and shows that it is something that could not possibly have been avoided. According to his explanation, the function $Y = Y(GNP)$ is seasonally adjusted. Consequently, in the construction of the function, it was assumed that the quarterly instalment on personal income taxes, due on December 15, should be subtracted from the fourth-quarter income payments. But Congress later postponed this quarterly instalment to January 15. This fact, alone, accounts for most of the difference between the observed disposable income and the calculated disposable income.

There was also a smaller error in the autonomous function because demobilization of the armed forces proceeded at a much faster rate than had been anticipated and therefore led to an extraordinarily high rate of mustering-out pay.

A POSITIVE SUGGESTION

Two possible reactions to the recent failures are the following: (1) We may now discard these new-fangled and difficult econometric methods which have been proved wrong and relax again into armchair comments about the future course of economic events. This is certainly the line of least resistance. (2) We may tackle the forecasting problem with renewed vigor, making use of the valuable information that we have gained from this trial. We shall dwell upon the second reaction exclusively.

A principal failure of the customary models is that they are not sufficiently detailed. There are too many variables which are classified as autonomous when they are actually induced, and there are no dynamic elements injected into the system. The surplus of autonomous variables results from a failure to discover all the appropriate relationships constituting the system. In addition to the consumption function, we should have the

investment function, the inventory function, the housing function, the price-formation equations, etc. There exist good theories from which these additional functions can be constructed, and one should not prematurely despair of determining these functions from the observed data. All the details of the construction of these functions must be the material of subsequent papers, but at this stage the statement can be made that many preliminary investigations[22] have shown these functions to exist.

The dynamical aspects of statistical models are also very important. While the consumption function has not been found to depend heavily upon lags or other dynamical elements, those functions which are erroneously assumed to be autonomous have been found to be very greatly influenced by such variables. For example, there are very strong correlations between current purchases of new plant, equipment, dwellings, and the holding of stocks of goods, on the one hand, and the past levels of prices, output, or income, on the other.

The existence of lags means that there are definite links between national income yesterday and today and tomorrow. Optimum forecasts of tomorrow's income should take into account the recently realized levels of income. Rather than make wild guesses, we should do better to forecast tomorrow's income as dependent on today's income. The extremely high wartime incomes made it unlikely (though not impossible) that the transition levels of income would be very low.

There are two ways of using the complicated dynamical systems for economic forecasting and policy recommendations. We may attempt to estimate all the relevant structural characteristics of the system, such as the various multipliers, elasticities, marginal propensities, marginal productivities, etc. The other method of procedure is that of pure prediction, where we do not try to estimate all the structural characteristics of the system, but only those combinations that are necessary for prediction. The latter method cannot be used for all types of policy.

A simple example will make these ideas more specific. Suppose that we have a system of linear difference equations which describe the operation of the economy

$$L_i(y_{1t}, \ldots, y_{nt}, y_{1,t-1}, \ldots, y_{n,t-1}, \ldots, y_{1,t-p}, \ldots, y_{n,t-p}, z_1, \ldots, z_m) = u_{it} \quad (i = 1, 2, \ldots, n),$$

where L_i is a linear operator, $y_{j,t-k}$ = the jth endogenous variable of the kth preceding time period, z_j = jth exogenous variable (current or lagged), u_{it} = ith random disturbance. If we know the initial conditions and the stochastic properties of the u's, we may study the entire time path of the system of endogenous variables, in terms of the exogenous variables.

The statistical treatment of the above system of equations involves the computation of "optimal" estimates of all the parameters of the L_i-functions, that is, estimates that have properties such as "lack of bias," "consistency," etc.[23] We shall then be able to do two things: (1) We shall be able to forecast, for short periods in the future, the course of any endogenous variable in the system by as-

[22] Presented by the author in a paper read before the Econometric Society in January, 1946. An abstract appears in *Econometrica*, April, 1946, pp. 159–62.

[23] An estimate of a parameter is said to be "unbiased" if its mathematical expectation equals the parameter. A consistent estimate can be roughly defined as unbiased in large samples.

suming that the estimated parameters remain unchanged and solving the statistical equations in terms of the exogenous variables. (2) If the parameters are supposed to change in a known way because of government policy or for other reasons, we can estimate the effect of these changes upon the endogenous variables.

The alternative method of procedure is to solve the system of equations for any particular endogenous variable in terms of the exogenous variables and the lagged values of all the endogenous variables.

$$y_{it} = L_i^*(y_{1,t-1}, \ldots, y_{n,t-1}, \ldots, y_{1,t-p}, \ldots, y_{n,t-p}, z_1, \ldots, z_m) + v_i \quad (i = 1, 2, \ldots, n),$$

where the v's are linear combinations of the u's. If the u's are nonautocorrelated random time series, then the v's will also be nonautocorrelated random time series. The L_i^*-functions are called the "reduced forms," as distinct from the L_i-functions, which are called "structural behavior equations." We may estimate the parameters of the reduced forms and then have enough information to forecast the time path of any single variable of the system, say *GNP*, in terms of the exogenous variables. There are great simplifying advantages in working with the L_i^*-functions rather than the L_i-functions because much more elementary statistical methods may be used to estimate the parameters of the former functions than may be used to estimate the parameters of the latter. In fact, the obvious procedure, in order to obtain the coefficients of the L_i^*-functions, is to treat y_{it} as the dependent variable and to determine all the least-squares regression coefficients of this variable on the lagged variables and exogenous variables as independent variables. However, if we aim at estimating structural behavior equations, we cannot, in general, treat a single equation independently of the rest of the system and must use other methods of estimation. Obviously, it is preferable to work with the structural equations since we can do everything with them that we can do with the reduced forms, and, in addition, we can make certain types of policy judgments that we cannot make on the basis of the reduced forms.

A disadvantage of the reduced-form method of estimation is that there are usually not many degrees of freedom available for the estimation of the parameters, because of the short period of observation available in most economic series. There are usually so many exogenous and lagged endogenous variables in the system that twenty or thirty annual observations may be insufficient for statistical estimation.

Another type of reduced form is the following:

$$y_{it} = L_i^{**}(y_{i,t-1}, \ldots, y_{i,t-q}, z_1, \ldots, z_r) + w_i \quad (i = 1, 2, \ldots, n),$$

where q and r depend upon the order of lags in the entire system. The L_i^{**}-functions are obtained from the L_i-functions by solving for any single endogenous variable in terms of its own lagged values and the exogenous variables. These reduced forms show the time path of any endogenous variable in the system in terms of exogenous variables and are very useful in studying the cyclical behavior of various endogenous variables. The primary disadvantage of this system is that the disturbances, the w's, will not, in general, be nonautocorrelated even though the u's are nonautocorrelated in the original system. It can easily be shown that the process of reduction from the system involving the L_i-functions to the system involving the L_i^{**}-functions

usually will introduce autocorrelation in the disturbances. We must have resort to more complicated statistical methods in the case when the disturbances are autocorrelated.

The author has attempted to get first approximations to the L_i-functions by the single-equation, least-squares techniques, although it is known that the estimated values of the parameters might be changed considerably when the equation-system methods are applied. Bearing in mind the tentative nature of the conclusions, the author used these first approximations in September, 1945, to forecast the level of *GNP* for the fiscal year ending June, 1946. The usual assumptions were made about price control, government spending, tax receipts, etc. These autonomous variables in connection with the behavior equations of the system led to a forecast of *GNP* of about $190 billion for the fiscal year 1946. This forecast will be slightly above the true value, but it could have served as an intelligent guide to policy. It showed definitely that the danger for this fiscal year was one of inflation rather than of deflation.

There are some basic reasons why this model gave different results from the Hagen-Kirkpatrick model: (1) There were many lags in the system which tied the future levels of many economic variables to the past values, especially in capital formation. (2) The total consumption function, rather than the component regressions on disposable income alone, was used. The total consumption function held true, while the individual regressions did not, as was discussed in previous sections.

AN APOLOGY?

Econometric models must necessarily be based on the long series of records that we have compiled from the workings of a normal peacetime economy. The models are meant to describe behavior patterns in a normal peacetime economy, not in a period of the aftermath of the world's greatest war, when there is a huge number of serious economic dislocations. We can look forward to much better results in the post-transition period, when there will be no production bottlenecks, European famine, price control, stocks of surplus war materials, readjustments to civilian life, etc.

The alternatives to econometric methods of forecasting do not appear to be promising. We must form judgments in order to execute policies. Suppose these judgments are formed by the unsystematic methods of guessing which, in the period 1939–41, formed the basis of estimates of our capacity to produce or of the taxes necessary to prevent inflation. We cannot be very hopeful about solving our economic problems if we have to rely on such methods in the future. Most of the pre-war guessers seriously underestimated the levels which national product would reach during the war, and they incorrectly predicted that, in an economy where the government spends nearly 50 per cent of the *GNP* on war goods, the mild tax rates voted by Congress in conjunction with direct price controls would not be able to prevent a disastrous inflation. Perhaps careful econometric studies of productivity and demand could have demonstrated, in advance, our potential level of output and the size of the inflationary gap to be closed by direct controls. Econometric methods certainly could not have been worse than any other methods that were used.

Economic policy during the 1930's was also based on incorrect judgments. We

experimented with government deficits of $2–$3 billion, but large-scale unemployment persisted. During the war the deficit grew manifold, and full employment followed immediately. We never realized the true size of our deflationary gap during the great depression because we did not have an accurate knowledge, then, of full-employment output. Again, econometric studies might have been able to show the necessary amount of government spending in order to generate a full-employment level of output. Certainly, alternative methods did not answer the appropriate questions of policy.

APPENDIX

The Time Series and Their Construction

Year	C_1	C_2	C_3	p_1	p_2	p_3	p	T
1919.....	$62.2	$360.7	$ 85.2	1.365	1.828	0.695	1.391	$541.6
1920.....	66.7	377.6	138.1	1.602	2.042	0.936	1.559	619.0
1921.....	52.5	295.7	161.2	1.419	1.384	1.190	1.320	538.0
1922.....	59.1	297.1	154.5	1.151	1.330	1.149	1.248	532.5
1923.....	73.2	318.9	166.1	1.099	1.410	1.134	1.271	609.2
1924.....	69.2	304.1	186.7	1.102	1.346	1.210	1.262	594.1
1925.....	82.9	336.7	168.3	1.049	1.408	1.242	1.294	632.8
1926.....	81.8	340.7	185.7	1.003	1.382	1.313	1.296	654.2
1927.....	77.3	336.9	183.1	1.056	1.299	1.313	1.266	630.3
1928.....	77.2	330.3	195.8	1.070	1.301	1.311	1.269	626.6
1929.....	81.3	321.9	197.1	1.080	1.283	1.333	1.264	643.0
1930.....	65.8	293.3	186.9	1.059	1.185	1.361	1.221	596.4
1931.....	50.8	251.5	148.3	1.013	1.017	1.314	1.098	501.5
1932.....	33.6	196.3	125.0	0.995	0.866	1.191	0.972	382.9
1933.....	27.1	192.7	127.4	0.983	0.879	1.032	0.937	344.8
1934.....	38.0	225.5	121.9	1.000	1.000	1.000	1.000	398.8
1935.....	44.8	238.9	135.2	0.950	1.097	0.977	1.038	440.9
1936.....	52.3	264.7	152.1	0.922	1.102	1.000	1.044	517.8
1937.....	59.0	277.1	159.1	0.933	1.154	1.041	1.087	527.8
1938.....	46.2	261.9	153.3	0.968	1.044	1.064	1.042	483.0
1939.....	48.9	249.1	184.9	0.985	1.013	1.275	1.026	530.3

C_1: Per capita expenditures on durable consumer goods.

$$C_1 = \frac{(1)[(2)+(3)]}{(4)(5)} \quad (1919\text{-}28),$$

$$C_1 = \frac{(6)}{(5)} \quad (1929\text{-}38),$$

$$C_1 = \frac{(7)}{(5)} \quad (1939).$$

(1) = Consumer expenditures on durable consumer goods (S. Kuznets, *National Income and Capital Formation, 1919–1935*, p. 85).

(2) = Total consumer expenditures, exclusive of net imputed rents on owner-occupied, nonfarm dwellings (Mary S. Painter, "Estimates of Gross National Product, 1919–1928," *Federal Reserve Bulletin*, September, 1945, pp. 872–73).

(3) = Net imputed rents on owner-occupied, nonfarm dwellings (S. Kuznets, *National Income and Its Composition, 1919–1938*, II, 735).

(4) = Total consumer expenditures (S. Kuznets, *National Income and Capital Formation, 1919–1935*, p. 85).

(5) = Population of continental United States (*Statistical Abstract of the United States* [1943], p. 3).

(6) = Consumer expenditures on durable goods (*Survey of Current Business*, April, 1942, p. 15).

(7) = Consumer expenditures on durable goods (*Survey of Current Business*, April, 1944, p. 13).

C_2: Per capita expenditures on nondurable consumer goods.

$$C_2 = \frac{(8)[(2)+(3)]}{(4)(5)} \quad (1919\text{-}28),$$

$$C_2 = \frac{(9)}{(5)} \quad (1929\text{-}38),$$

$$C_2 = \frac{(10)}{(5)} \quad (1939).$$

(8) = Consumer expenditures on perishable and semidurable commodities (S. Kuznets, *National Income and Capital Formation, 1919–1935*, p. 85).

(9) = Consumer expenditures on perishable and semidurable goods (*Survey of Current Business*, April, 1942, p. 15).

(10) = Consumer expenditures on nondurable goods (*Survey of Current Business*, April, 1944, p. 13).

C_3: Per capita expenditures on consumers' services.

$$C_3 = \frac{(11)[(2)+(3)]}{(4)(5)} \quad (1919\text{-}28),$$

$$C_3 = \frac{(12)-(9)+(3)}{(5)} \quad (1929\text{-}38)$$

$$C_3 = \frac{(13)+(14)}{(5)} \quad (1939).$$

(11) = Consumer expenditures on services not embodied in finished commodities (S. Kuznets, *National Income and Capital Formation, 1919–1935*, p. 85).

(12) = Consumer expenditures on nondurable goods and services (*Survey of Current Business*, May, 1942, p. 12).

(13) = Consumer expenditures on services (*Survey of Current Business*, April, 1944, p. 13).

(14) = Net imputed rents on owner-occupied, nonfarm dwellings, estimated by the present writer according to Kuznets' methods (see *National Income and Its Composition, 1919–1938*, II, 753). The figure for 1939 is $1.5 billion.

p_1: Price index of durable consumer goods.

$$p_1 = (15) \div 98.5$$

(15) = Price index of durable consumer goods, 1913: 100 (William H. Shaw, *Finished Commodities since 1879* ["National Bureau of Economic Research, Occasional Papers," No. 3], pp. 7–8). 98.5 = Price index of durable consumer goods for 1934, with 1913: 100.

p_2: Price index of nondurable consumer goods.

$$p_2 = \frac{(16)(17)+(18)(19)}{(17)+(19)} \div 110.8.$$

(16) = Price index of perishable consumer goods, 1913: 100 (*loc. cit.*).

(17) = Output of perishable consumer goods measured in 1913 prices (*ibid.*).

(18) = Price index of semidurable consumer goods, 1913: 100 (*ibid.*).

(19) = Output of semidurable consumer goods measured in 1913 prices (*ibid.*).

$$110.8 = \left[\frac{(16)(17)+(18)(19)}{(17)+(19)}\right]_{1934},$$

where 1934 indicates the year for which the values are computed.

p: Price index of consumption as a whole.

$$p = (20) \div 79.3 \quad (1919\text{-}38),$$

$$p = 1.026 \quad (1939).$$

(20) = Price index implicit in the adjustment of total consumers' outlay, 1929: 100 (S. Kuznets, *National Income and Its Composition, 1919–1938*, I, 145. Table 4, col. 3).
79.3 = Price index for 1934.
1.026 = Weighted average of the Bureau of Labor Statistics cost-of-living index and the index of prices paid by farmers for subsistence. The weights are proportional to the nonfarm and farm populations, respectively, and the index is converted to 1934 as a base year.

p_3: Price index of consumers' services.

$$p_3 = \frac{C_3}{\frac{(2)+(3)}{p} - \frac{C_1}{p_1} - \frac{C_2}{p_2}} \quad (1919\text{-}38)$$

$$p_3 = \frac{C_3}{\frac{(2)+(14)}{p} - \frac{C_1}{p_1} - \frac{C_2}{p_2}} \quad (1939).$$

Y: Per capita disposable income.

$$Y = \frac{(21)}{(5)}.$$

(21) = Disposable income measured in billions of current dollars. This figure is built up from various component series and does not agree exactly with the published series of the Commerce Department. This particular series has been used because the consumption equations calculated here will become part of a more complete econometric study in which the author's own figures on disposable income will be used. Space here does not permit a detailed explanation of each of the steps used in the preparation of the series on disposable income; however, this series does not differ very much from the other available estimates of disposable income.

COWLES COMMISSION FOR RESEARCH
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THE ITALIAN LIRA, 1938–45[1]

WILLIAM D. GRAMPP

IT IS the purpose of this paper to examine Italy's wartime inflation in those major aspects for which fairly complete and reasonably reliable information is available and to attempt to define the critical factors operating to influence prices. The period examined comprises the years from 1938, when conditions were approximately normal, to May, 1945, when organized warfare ceased. A definitive study of the course of inflation in Italy must wait upon more complete data concerning the aggregate effect of the war on the Italian economy and can be made only after the nation has returned to something resembling peacetime conditions. The data contained in this paper and the statistics estimated from them, though they are not all that one could wish for, are more complete than anything hitherto available and on a number of crucial points are quite adequate. The use of these provisional data also may be justified by the consideration that many of them probably will not be improved for several years to come. This study consists of five parts: prices and income, the quantity of money, fiscal and price policy, price relations, and conclusions.

[1] I am indebted to a number of persons for assistance in obtaining the information necessary to this study and particularly should like to name Dr. Vera Cao Pinna, statistician of the Labor Subcommission of the Allied Commission for Italy; Dr. Paolo Baffi, chief of studies for the Bank of Italy; and Professor Benedetto Barberi, acting director of the Central Statistical Institute of Italy. It is to be stressed that they are in no way responsible for the use made of their data or for the analysis and conclusions of this study. Where sources are not given, the data or estimates are the work of the writer. The abbreviation "Lit." (*Lira italiana*) is sometimes used in this article as the symbol for the Italian lira.

I. PRICES AND INCOME

Although no information is available concerning the movement of all prices throughout Italy, it is possible to obtain some notion of changes in their general level from the series contained in Table 1 on price movements between 1938 and 1945. In that period retail food prices increased 3,342 per cent in the southern and central regions of Italy. Strong inflationary factors were at work by the year 1943 and had raised prices to more than five times their 1938 level when the Allied invasion of the Italian peninsula began. However, the major portion of the total increase in prices came after 1943. At the end of 1944, food prices were about 400 per cent of their 1943 average and by May, 1945, were more than six times the 1943 level.[2]

An indication of the movement of all prices throughout Italy is given by the wholesale index of Table 1. To the year 1941, wholesale prices and retail food prices increased at about the same rate, but after that year the rate of increase in wholesale prices was much less, and at

[2] The index of retail food prices was computed by using base year weights because there is nothing but the most scanty information concerning changes in diet during the war, and my main interest is in measuring changes in the value of the lira for which purpose base year weights are most useful. When these could not be used, reasonably close substitutes were introduced.

Such an index has, of course, an upward bias, and one which used given year weights or a changing series of q's would show a smaller increase. What the index of retail food prices of Table 1 does show is that if a family purchased in May, 1945, approximately the same foodstuffs as it purchased in 1938, it would have spent 34.42 times as much in the latter as in the former period; that is, the purchasing power of the lira in terms of retail food prices fell 97.09 per cent.

the end of the war the wholesale index stood at 944, or less than one-third the retail food price index. One reason for the disparity between the two price groups is the greater inflation experienced in Italian territory under Allied control, to which the food index refers. Another is that transportation rates, which increased more than most wholesale prices, are not included in the wholesale index; these rose throughout all Italy, but the increase was much larger in the southern-central regions, where destruction and confiscation were greater.[3]

TABLE 1*

INDEX OF PRICE MOVEMENTS, 1938–45

Year	Retail Food† Prices	Wholesale‡ Prices	Workers'† Income
1938	100	100.0	100
1939	104	104.3	110
1940	123	121.7	132
1941	138	135.8	143
1942	259	152.6	150
1943	561	262.0	193
1944:			
September	2076	892§	460‖
October	2255	.....	.....
November	2543	.....	715
December	2228	.....	.....
1945:			
January	2638	.....	.....
February	2841	.....	.....
March	3083	.....	.....
April	3397	.....	.....
May	3442	944.0	.....

* Source: Computed from data of Central Statistical Institute of Italy, Labor Subcommission of the Allied Commission for Italy, and General Confederation of Italian Labor.

† Central and southern Italy only.

‡ All Italy.

§ Average for year.

‖ July–October, 1944.

Workers' income between 1938 and November, 1944, increased 615 per cent in central and southern Italy; this movement encompasses changes in nominal wages plus those in all allowances, subsidies, etc. Between 1938 and 1942 income increased 50 per cent, or at about the same rate as wholesale prices. After 1943, during which the increase was about 33 per cent, income rose much more rapidly than it previously had, more than doubling by September, 1944, and increasing another 55 per cent in the next two months. Although there are not sufficient data to make as precise an estimate of workers' income at the end of the war as in November, 1944, it is probable that income increased by an amount which would raise the index to at least 800 for May, 1945.[4]

Less detailed information is available concerning changes in prices in the areas of Italy under the governance of Mussolini's "Social Republic." However, some notion of the magnitude of change can be obtained from the movement of retail food prices in the city of Milan. Between 1938 and 1943 food prices in Milan increased 446 per cent as compared with an increase of 461 per cent in central and southern Italy; in December, 1944, the Milan index stood at 1460 and in May, 1945, at 2456, which is considerably less than the corresponding indexes of 2228 and 3442 in south-central Italy. It is noteworthy that prices in Milan were higher than elsewhere in northern Italy. From available information it may be assumed that the price level in northern Italy was from one-half to two-thirds

[3] Other reasons for the disparity are that the coverage of the wholesale index—which, of course, is much the more difficult to compute—is not so complete in other respects as that of the food index and that it tends to be disproportionately weighted by fixed (or fictitious) prices. For a number of reasons, which need not be set down here, it has been impossible to improve the wholesale index. However, even a perfectly constructed series would still show less increase than the food series, for, as shown below, there was a very real disparity of movement between the two price groups (see below, pp. 313, 332).

[4] The limitations of the index are also noted below in relation to real wage movements.

as high as in the south-central regions. These fractions would place the level of retail food prices in the north in May, 1945, at from 1621 to 2195 per cent greater than in 1938. If the level of retail food prices in the two areas were to be combined (giving each equal weight, for the population in the two areas is approximately the same), the average value for May, 1945, would be between 2582 and 2869.

Changes in security prices between 1938 and June, 1945, are shown in Table 2. At the close of the war, share prices on the Rome exchange were 720 per cent of their 1938 value, which fact, taken with others noted below, indicates an adjustment of capital values to the higher price level and reflects expectations of large profits once the industrial plant of Italy resumes operation. There are several reasons for believing that the level of stock prices at the end of the war was the product of recapitalization and expectations rather than of a movement away from the lira to the holding of real assets. The assets represented by the shares constituted a very feeble hedge against inflation: many were destroyed or demolished, others seriously damaged, and most were in the industrial areas of northern Italy, where, it was commonly believed up to the very moment of the armistice, the Germans would demolish the plants as they withdrew. Had there been a real flight from the currency, the relative change in share prices would have been at least as great as that in food and wholesale prices.[5] That expectations were important in determining stock prices is indicated by the fact that between January and June, 1945, the largest relative increases in individual prices were registered in quotations of the shares of electrical, textile, and chemical firms, all of which promised to furnish the largest profits in the period of reconstruction. When at the end of the war it was erroneously believed in Rome that the plants of the north were about to resume operation immediately, the index of stock prices rose almost 100 points.

[5] If the value of the currency unit were expected to decline for a substantial length of time, rational behavior would dictate that the value of fixed factors be recapitalized not only for the present but also for the future level of product prices. Stock prices, then, would increase even more than commodity prices.

TABLE 2*

INDEX OF STOCK PRICES ON THE ROME EXCHANGE, 1938–45

Year	Index	Year	Index
1938	100.0	1944—*cont'd*	
1939	136.1	April	701.5
1940	155.2	May	841.6
1941	195.4	June	946.2
1942	228.2	July–October	†
1943	454.9	November	557.7
July	432.6	December	575.4
August	415.3	1945:	
September	412.6	January	617.3
October	401.7	February	795.2
November	410.8	March	738.8
December	536.8	April	717.8
1944	639.6	May	720.1
January	541.3	June	812.0
February	467.6		
March	485.8		

* Source: From data of Bank of Italy.
† Exchange closed.

Within the period from 1938 to 1945, changes in share prices do not necessarily have the same meaning as the change taken over the period as a whole. The sharp increase in the index between March and June, 1944, was the result of uncertainty bred by the military campaign for Rome and the final taking of the city in the latter month; upon entering Rome, the military closed the bourse and did not permit its reopening until November of that year. The price movement which began in the spring of 1944 was more truly like a flight from the cur-

rency than the movement over the entire period and was repeated, on a lesser scale, by the changes between December, 1944, and February, 1945, when the index rose more than 200 points. During these latter months, conditions below the Gothic Line were most wretched and the outlook wholly dismal. The improvement in the three succeeding months was reflected in declining stock prices.[6]

The change in bond prices strengthens the belief that at the end of the war in Europe there was no menacing movement away from the lira. Three of the principal bonds traded on the Rome exchange were quoted at the end of March, 1945, at between 87.75 and 97.8, two of them selling for more than 96. At the end of April these prices showed small gains. Though below par, the prices hardly suggested any grave concern for the future redemption of government securities or of the future value of the income from all bonds. The increase in bond prices denotes, of course, a decline in the effective rate of interest, unless the nominal rate is altered by conversion or some other process. A study of the relationship between the effective yield of bonds and their market price indicates a decline in the long-term rate of interest between June, 1943, and June, 1945, although the decline was not continuous.[7]

One of the major, though in my opinion not primary, causes of the inflation in Italy was the decline in real income produced, which fell from 125 billion lire in 1938 to Lit. 60 billion in 1944—a decrease of more than 50 per cent (Table 3). All estimates refer to the whole of Italy and, for the years 1943 and 1944, are gross figures. The values for the years 1943 and 1944 are aggregate estimates for income produced in both Allied and Fascist territory. The difficulty of estimating national income under the eruptive conditions prevailing in 1943 and 1944 render the figures for these years subject to a probable error of at least ± 25 per cent. It will be noted that the increase in national income in the seven-year period was purely a monetary phenomenon and that at no time after 1938 was any success achieved in increasing output, not even under the comparatively favorable conditions which prevailed in the five years between 1938 and 1942. As the war moved nearer Italy, real income fell greatly, both because of destruction by air raids and invasion and because of the disorganization wrought by the severing of the country into two distinct economies.[8] Real income de-

[6] Declining prices in this unusual case denoting less pessimism over reconstruction and greater confidence in the lira.

[7] This study was made by the Studies Division of the Bank of Italy for the purpose of obtaining an index of the "cost of an income of one lira," i.e., the outlay necessary to obtaining an income of one lira. The index was computed from the ratio between the market prices of selected bonds and the amount of their yield. Unfortunately, I have seen none of these values and am unable to compute the actual rate. However, the movement of the rate of interest can be deduced from the movement of the index which measures changes in the reciprocal of the rate. A decrease in the index indicates an increase in the ratio between yield and market price and an increase in the effective (as distinct from nominal) rate of interest, while an increase in the index indicates a decline in the rate. The index fell from 100 in June, 1943, to 49 in October of that year (and the rate of interest increased) and rose to 108.3 in June, 1945. The index dropped sharply in the first five months of the period, increased continuously between October, 1943, and June, 1944, fell to 93.8 in August, and thereafter fluctuated above 100.

[8] The economic separation of Italy raises perplexing and often insurmountable statistical problems to which no general rule would seem applicable. In the case of national income it seems justifiable to ignore the separation for purposes of obtaining an aggregate figure. (It will be noted that the wholesale price deflator is taken from Table 1 and also refers to the whole of Italy.) The problems raised by the separation are analytically no more serious than those raised by the division of each of the two great areas

clined about 25 per cent in 1943 and again by the same relative amount in 1944. In the first six months of 1945, real output was probably less than in the corresponding period of 1944, because added to the previous conditions limiting output was the critical scarcity of raw materials. In the first five months of 1945, real income declined at least at as great a rate as in the preceding two years.

As the total national product declined through the war years, the proportion contributed by agriculture increased from about 50 to 75 per cent. Although farm lands and installations were seriously damaged during the fighting in many of the southern and central provinces, agriculture in some areas recovered partially, while in others output declined much less than that of other industries, the principal reasons for its comparative recovery being the more flexible production methods, its lesser dependence on transportation for obtaining raw materials and distributing the product, the comparatively greater assistance it received from Allied and Italian authorities, and the fabulous prices prevailing on the black markets for food. Although farm prices rose less than nonfarm prices, the price incentive was greater in agriculture than in other industries, for agriculture was virtually the only form of economic activity left to Italians in the southern and central regions, most of all other industry having been requisitioned or controlled by the Allies for the supplying of their armies or for the providing of assistance directly to civilians. In the spring of 1945, agricultural output in these regions was approximately 80 per cent of the quantity produced before the war. This recovery did not include the restoration of buildings and equipment damaged or lost during the war and was all the more remarkable for being achieved when productivity had fallen to its lowest level in generations.

The decline in income produced by manufacturing industries was not so much the result of plant destruction as of the destruction of transportation facilities and of the general disorganization of the economy. When the armistice was declared, it was disclosed that the plants of the north, where manufacturing is concentrated, had been damaged amazingly little and most were ready to resume operation upon obtaining raw materials. This shortage did not indicate the destruction of *other* plants in Italy, for the nation is largely dependent upon imports for most industrial raw materials. Italian mines were affected less by destruction than by the removal and depreciation of machinery and by limited transportation. In the pre-war economy mining was not quantitatively important and became so only when imports were curtailed or ceased and domestic deposits had to be utilized.

In the nonagricultural area of the Italian economy the most serious destruction was experienced in transporta-

TABLE 3*

NATIONAL INCOME OF ITALY, 1938–44

Year	National Income (Billions of Current Lire)	Wholesale Price Index	National Income Adjusted (Billions of Lire)
1938.....	125	100.0	125
1939.....	130	104.3	125
1940.....	140	121.7	115
1941.....	150	135.8	110
1942.....	160	152.6	105
1943.....	210	262.0	80
1944.....	535	892.0	60

* Sources: For years 1938–41, Professor Benedetto Barberi; figures for 1942–44 estimated by writer.

(Allied and Social Republic) into a large number of regions separated from each other by disorganization.

tion, in relation both to its own plant and to its importance in organizing the Italian economy. In the southern regions the railway system was completely disorganized in the spring of 1944 by air raids, demolition, and ground fighting; and rail transportation in May, 1945—after a year's work of reconstruction—was at about 20 per cent of the pre-war level, of which about three-fourths was utilized by the Allied military. In the central region rail operation was on about the same scale. In the north destruction was not serious, except in certain areas strategic to the military. The damage done at these critical points was sufficient, however, to paralyze most of the main lines for several months after the armistice.

Water transportation facilities suffered at least as severely as the railways and at the end of the war Italy had at its disposal only 350,000 tons of shipping, comprised exclusively of coastal vessels. Its pre-war ocean fleet, of about 3,200,000 tons, was either destroyed, damaged beyond use, or (in the case of a few vessels) placed in the Allied shipping pool and not available for civilian uses. No reliable data are available on the number of trucks and automobiles destroyed or removed during the war or on the number in operation at the time of the armistice. Whatever the number, including vehicles supplied by the Allies, it was utterly inadequate.

The inadequacy of transportation is the primary cause of the disorganization of the Italian economy, which in turn was one of the primary data of the inflationary period. By "adequate transportation" is meant a quantity of services available for consumption sufficient to yield investment in transportation a net rate of return no higher than that in other industries.[9] Although there is no way of accurately measuring the rate of return to transportation during the later stages of the war, it was clear to any observer in Italy at that time that owners of transportation equipment were obtaining enormous profits or experiencing extravagant windfall gains.

A second cause of disorganization was the very limited means of communication, which hampered the movement of goods and productive factors even when transportation was available. Post, telegraph, and telephone operated on a reduced scale, information provided by daily newspapers was limited to that which could be contained on two pages, the use of the radio was curtailed by the scarcity of electric power—all with the result that there was lacking that knowledge of market conditions requisite to an economic allocation of resources. Whether such decisions were properly the responsibility of individuals with something to buy or to sell or whether they were the responsibility of the Italian authorities matters little, because neither group possessed the means of making such decisions.

The feeble authority of the Italian government in Allied territory was a third cause of disorganization. When the Allies invaded Italy, they came into a complex, highly bureaucratic and arbitrary system of economic control, which was administered at all important points by political intolerables; and the military was confronted with the alterna-

[9] This definition is chosen in preference to one which describes adequacy as a condition in which the prices of the same product differ by no more than the cost of transportation from one market to another—a condition, indeed, which was fulfilled at all times in Italy when owners or operators of transportation equipment knew the extent of price differentials and were able to circumvent restrictions on the movement of goods and persons. That is, it was fulfilled at all times when a regional or national market existed.

tives of continuing in some form the controls then in existence, of establishing an entirely new system of control, or of eliminating the most outrageous features of the old regime and substituting *ad hoc* measures. They chose the last and sought to supplement their own inadequate staff with Italian personnel, gradually giving over to the Italians the greatest measure of formal authority over the economy. In the subsequent confusion, which probably was unavoidable, the economy had to function within an authority which was weak, diffuse, flagrantly inefficient, cumbersome, and arbitrary, and usually without the means of fulfilling its ostensible responsibilities.[10] The kind of price and fiscal policy followed in liberated Italy is examined below, and here it will be noted only that the attempts at regulation had very little effect in bringing about order in the economy and that most efforts aggravated a condition which probably would have been disorderly even under the most effective political authority. In many instances the state did not provide the minimal amount of law and order indispensable to economic activity.

Concurrent with the three foregoing factors was the change in customary business practices, which was both a result of the economic disorganization and a factor contributing to it. Not only were there changes in the kinds and quantities of goods and services produced, and with these changes a drastic altering of relative prices and of the price level, but the distributive system and the markets within it changed fundamentally. As conventional methods of doing business became impossible or impracticable and as no effective substitutes were devised, there was a great increase in illegal activity which literally touched everyone in Italian society. Everyone, for example, became dependent for food upon the black market, because the amount of food distributed through the rationing system was wholly insufficient.[11]

It is most difficult to convey an accurate impression of what the Italian economy was like during the final year of the war. The market was very poorly organized and had become completely transformed during the war years. Yet it did exist, goods and services were produced, buying and selling did take place and a modicum of economic activity did continue. This activity, however, was drastically limited by the state of disorganization. Individuals had no reliable information about conditions outside the sphere of their immediate experience, and any venture at enterprise became a supreme risk. But ignorance was not the only impediment. That there could be no reliance upon the police authority—to provide the most elementary security—multiplied the risk. Once these facts were accepted, there still remained the difficulties of finding transportation and of effecting a transaction in a market where customary procedures were ineffective or impracticable. The most commonplace business transaction required enormous effort, and the extreme complexity of economic life affected not only business enterprise but also individuals, who found the mechanics of existence consuming ever more effort and time and becoming the primary preoccupation of life.

An example may serve to suggest the state of business affairs—an example which, though hypothetical, is not at all unrealistic or unrepresentative. When the north was liberated, it was rumored

[10] Although my purpose is not to look into the political confusion which prevailed in Italy during the war, it cannot be ignored when it has such an obvious bearing on economic activity.

[11] See below, Sec. III.

that the price of citrus fruits in Lombardy was very high and that lemons were selling in Milan for Lit. 200 the kilogram while in the southern growing regions the price, it was believed, was Lit. 20. Individuals in the capital, close to the sources of reputed information, quickly saw the possibilities of profit. Before anything could be done, however, it first was necessary to know whether or not goods could be shipped to the north in circumvention of the Allied embargo on the movement of goods and persons between the two areas. (The Allied military had announced the embargo soon after the drive for the north began and stated that it would permit only the controlled movement of goods to be sold at low, fixed prices.) If the trader were willing to risk being stopped at the barrier and being turned back or having his goods confiscated by Italian authorities of the region, he then had to consider the probability of being able to sell the lemons on the black market in Milan without serious interference from the authorities. That the lemons could be purchased in the southern growing regions in evasion of the government's amassing regulations he could be fairly certain because of past experience, although he could not be certain that the price was what it was reported to be. Once the trader willingly assumed these risks, the major task of finding transportation began. Railway space was unobtainable for a shipment of this kind, there being not enough for even legal movement of goods. For the same reason the trucks controlled by the government or the Allied Commission would not be available. The only way of obtaining a truck was by purchase or lease on the black market, where the trader would also have to obtain gasoline, tires, and parts. He then would try to obtain some kind of a permit to travel, since such a document would lessen the risk of confiscation or of being turned back. Such permits frequently were obtainable at a price.

Once on his way, he would have to pass innumerable "road blocks" maintained by regional, provincial, and municipal authorities. If he had been unable to obtain a travel permit, or if the permit were not recognized, he would have to "accommodate" the Italian authorities in order to pass by them. Along the road there would be danger of robbery and violence. If all these obstacles were surmounted and the trader reached Milan, he then would have to seek out the best black market (for there were several in each large city) for selling his product. This might involve more "accommodation," adding once again to the cost of getting the product to the consumer. When the lemons were sold, the trader would buy manufactured goods in Milan for sale in the south, and the return trip would mean a repetition of the experience of going north. Once such an enterprise were completed successfully, however, it would be very rewarding, and these efforts brought great profits to individuals who possessed a highly venturesome attitude toward business, had unlimited patience, and no little skill in evading the law. It might be asked why such transactions could not be made within the law, by following the procedure established by the authorities, and the answer would be that (*a*) legal distribution had to be made at prices which provided little if any incentive; (*b*) the procedure for legal distribution was not clearly defined and was inflexible; and (*c*) the administration of the legal distributive system was inefficient and often exacted an amount of effort out of all proportion to the returns involved.

The disorganization of the economy prevented the most effective use of the country's resources, already gravely limited and utterly inadequate to meet the physical needs of the people, and made for a lower level of living than even the very inadequate one which would have been otherwise possible. The disorganization meant that some resources were left idle while others were devoted to uses which might have been avoided (as reflected in the unnecessarily high costs of distribution, for example), and it made possible profiteering by those individuals who were in a position to take advantage of price differentials. On the monetary side, disorganization meant hoarding-spending patterns which differed widely from province to province, with attendant differentials in the velocity of circulation of money. Disorganization evoked the formation of new markets which were near sources of supply and very limited in size, each with unique characteristics. This condition multiplied the difficulty of formulating and administering a general policy of reconstruction.

Objective evidence of the disorganization is the dispersion of prices of commodities and services. A substantial range of prices for a fairly homogeneous commodity or service indicates a poor distribution or an uneconomic use of resources. Prices differed substantially not only between the regions of Italy but within regions, provinces, communes, and cities. For example, milk was 6 lire the liter on the south bank of the Po in June, 1945, while across the river—over which the bridges had been destroyed—it was 65 lire. On Rome's famous black market along the Tiber, Tor di Nona, pasta sold for Lit. 120 the kilo in April, 1945, while a few miles away on Monte Geniculo the price was 180. In salt-producing areas the product sold for 2 lire the kilo while in nonproducing areas it sold for 300 lire. Not all the differential was attributable to transportation costs, it is to be repeated; it was also the product of other factors noted above.

The magnitude of price dispersion is shown in Tables 4–6, inclusive. The variability of the prices of fifteen staple foodstuffs in southern and central Italy is given in Table 4.[12] This table shows each commodity's average price (computed by weighting each city's price by its population);[13] the range of prices; the standard deviation of the distribution of prices for each commodity; and the coefficient of variation of each distribution. Being a relative measure (the ratio between the standard deviation and the

TABLE 4*

VARIABILITY OF FIFTEEN COMMODITY PRICES PREVAILING ON THE BLACK MARKET, CENTRAL AND SOUTHERN ITALY, MAY, 1945

Commodity	Unit	Weighted Average Price (Lire)	Range	Standard Deviation	Coefficient of Variation
Beans (dried)	Kg.	119	135	34.7	.292
Bread	Kg.	88	93	25.8	.293
Cheese	Kg.	729	1087	448.8	.616
Flour	Kg.	89	98	27.2	.305
Grapes	Kg.	18	14	4.3	.239
Lemons	Kg.	31	56	16.2	.524
Milk	Lit.	35	49	14.8	.423
Mutton	Kg.	287	430	110.7	.386
Olive oil	Lit.	334	373	100.4	.301
Pasta	Kg.	127	164	45.3	.357
Potatoes	Kg.	42	55	14.9	.355
Salt	Kg.	68	298	78.6	1.156
Sugar	Kg.	932	1183	254.5	.273
Tomato paste	Kg.	300	310	89.5	.298
Wine (table)	Lit.	49	66	20.1	.417

* Source: From data of Central Statistical Institute.

[12] Black-market prices are used because on such markets the largest proportion of expenditure was made. See below, Sec. III.

[13] Only pre-war population figures are available.

mean), the coefficient of each distribution can be compared with that of every other. The greater the value of the coefficient, or relative dispersion, the less uniform are prices of a single commodity and the greater is the disorganization of the market. The market for salt was the least organized, the coefficient being 1.156, that is, the standard deviation is 115.6 per cent of the mean.[14] The least relative dispersion—.239—is shown in the prices of grapes, which may be attributed to the sources of supply being near

TABLE 5*

PRICE VARIABILITY OF FIVE STAPLE FOODS ITALY, 1938

Commodity	Unit	Weighted Average Price (Lire)	Range	Standard Deviation	Coefficient of Variation
Beef	Kg.	12.61	8.62	1.87	.1486
Bread	Kg.	1.90	.64	.22	.1151
Milk	Lit.	1.39	1.03	.25	.1817
Pasta	Kg.	2.68	1.16	.08	.0285
Potatoes	Kg.	.58	.26	.08	.1322

* Source: From data of Central Statistical Institute.

the markets, just as the opposite condition is indicated by the wide dispersion of salt prices. Of the fifteen distributions, all but two show a coefficient greater than .29.

The magnitude of price dispersion before the war is suggested by Table 5, which shows the variability of prices of five staple foods in 1938 (four of which are also included in Table 4). All coefficients are less than those yielded by the 1945 price distributions, the lowest being .0285 (pasta) and the highest, .1817 (milk). The striking difference in price variability in the two periods—indicative of the state of the Italian economy at the end of the war—is disclosed by the comparisons in Table 6.

Changes in price dispersion and movement toward uniformity are shown in Table 7, which measures the variability

TABLE 6

PRICE VARIABILITY, ITALY, 1938–45

Commodity	Coefficient of Variation	
	1938	1945
Bread	.1151	.2930
Milk	.1817	.4230
Pasta	.0285	.3570
Potatoes	.1322	.3550

TABLE 7*

PRICE VARIABILITY IN FOOD AND TOTAL LIVING COSTS IN CENTRAL AND SOUTHERN ITALY, 1938–45

Date	Weighted Mean (Lire)	Range	Standard Deviation	Coefficient of Variation
1938†	.....	.....	.....	.1449
1944:				
September	5798	6220	1725	.2917
October	6298	6210	1970	.3274
November	7108	5690	1895	.2898
December	6716	6500	1732	.2579
1945:				
January	7958	6490	1898	.2302
February	8575	6920	2066	.2280
March	9312	8070	1833	.2047
April	10,270	7090	2061	.2007
May	10,407	5563	1594	.1532

* Source: From data of Central Statistical Institute. Data for 1938 comprise total living costs; for all other years, the cost for a family of five (= 3.86 consuming units) of a food budget yielding 2,200 calories daily per consuming unit.

† The data for 1938 are given as index numbers and are comparable only in relative form.

of the cost of a food budget in southern and central Italy between September, 1944, and May, 1945. In the former period the average cost of a family food budget fixed in caloric content was Lit. 5798; the range of cost, 6220; the standard deviation of the cost distribution,

[14] A coefficient greater than one (or 100 per cent) indicates a skewed distribution.

1725; and the coefficient of variation, .2917.[15] While the average cost of the food budget increased Lit. 4609 between September, 1944, and May, 1945, the relative dispersion of budget costs decreased almost 50 per cent—to .1532. The almost continuous decline in the value of the coefficient indicated a movement *toward* price uniformity, and this in turn reflected an improvement in the organization of the market, which, though far from being well organized in May, was less disorganized than in September. The cost dispersion for the year 1938 is included in the table in order to show that prices were then not wholly uniform. Because the 1938 and the 1944–45 costs are computed differently, the coefficients for the two periods are not comparable.

II. THE QUANTITY OF MONEY

The total quantity of money in Italy during the period covered by this study consisted of: (*a*) notes of the Bank of Italy, metropolitan lire; (*b*) lira notes of small denomination (1, 2, 5, and 10 lire) issued by the Italian State Treasury; (*c*) lira notes issued by the Allied military (A.M. lire); (*d*) demand deposits held in commercial and postal savings banks; (*e*) nominative bank checks;[16] and (*f*) miscellaneous foreign currency.[17]

[15] The caloric content is 2,200 daily per adult male, and a family of five persons is the equivalent of 3.86 such consuming units, which is the basis of the budget. The method used to compute the budget minimizes the cost of obtaining a given number of calories, with some consideration given to the distribution of fats, starches, and carbohydrates, and understates the extent of price differentials (by substituting lower- for higher-priced foods).

[16] See below, p. 323.

[17] The foreign currency consisted mainly of blue-seal dollars and Bank of England notes, American military (yellow-seal) dollars, British military-authority sterling, gold sovereigns (British), five-dollar gold pieces, and French and Swiss francs.

Commercial and conventional bills of exchange lost their importance through the course of the war and in the last year of hostilities were quantitatively negligible. The German armies in Italy issued no military currency and financed their expenditure by printing metropolitan lire and drawing on the account of the German ambassador with the Bank of Italy. After 1943 the most important elements in the aggregate supply of money were metropolitan lire, A.M. lire, and demand deposits—which hereafter are referred to as total money. On June 1, 1945, these items totaled 675.9 billion, an amount which was 13.17 times as great as the quantity of metropolitan lire, treasury notes, and demand deposits in 1938 (Table 8).

TABLE 8*

TOTAL MONEY: CURRENCY AND DEMAND DEPOSITS, ALL ITALY, 1938–45

Year	Amount (Billions of Lire)	Index
1938	51.3	100
1939	59.7	116
1940	78.2	152
1941	111.8	218
1942	154.8	302
1943	241.1	470
1944†	.....	.....
1945‡	675.9	1317

* Source: Central Statistical Institute and Ministry of Finance.

† Demand deposits not available.

‡ June 1, 1945.

Between 1938 and 1940, total money increased 52 per cent; in the succeeding three years it increased between 34 and 56 per cent annually, until at the end of 1943 it was 4.7 times as great as in 1938. These increases are noteworthy for showing that the inflationary process began before the Allied armies had occupied

much of the peninsula.[18] While the quantity of money increased 370 per cent between 1938 and 1943, retail food prices and wholesale food prices increased 461 and 162 per cent, respectively, and national product declined 36 per cent. In the remaining seventeen months of war total money increased threefold—an increase which met all the less resistance because inflation was well begun when the increase occurred.

TABLE 9*

CURRENCY SUPPLY, ALL ITALY, 1938–45

Date	Metropolitan Lire (Billions)	Allied Military Lire (Billions)	Total Lire (Billions)	Total Index
1938.....	25.0	.....	25.0	100
1939.....	27.8	.....	27.8	111
1940:				
June.....	33.3	.....	33.3	133
December	37.8	.....	37.8	151
1941:				
June.....	44.5	.....	44.5	178
December	58.3	.....	58.3	233
1942:				
June.....	64.0	.....	64.0	256
December	83.3	.....	83.3	333
1943:				
June.....	92.5	.....	92.5	370
August...	114.0	†	†	†
December	158.3	9‡	167.3	669
1944:				
May.....	170.0	14.5‡	184.5	738
June.....	191.0	18.8	209.8	839
September	232.3	34.4	266.7	1067
1945:				
May.....	284.6	61.3	345.9	1384

* Source: Based on data of Ministry of Finance and Central Statistical Institute.

† Not available.

‡ Estimated.

The 675.9 billion lire outstanding at the beginning of June, 1945, consisted of 330 billion in demand deposits, 284.6 billion metropolitan lire, and 61.3 billion A.M. lire. In Table 9 is shown the increase in the supply of currency in all Italy between 1938 and 1945. In these years currency increased in almost exactly the same proportion as total money. In the three-year period from 1941 to 1943 the rate of increase in currency was the greater, but toward the end of the war it diminished, and in May, 1945, the currency index was only 5.1 per cent greater than the index of total money. On the eve of invasion—June, 1943—the stock of currency was 3.7 times as great as in 1938, an absolute increase of 67.5 billion. In the following month the first Allied military lire were issued. Although no figures have been made public of the amount placed in circulation during the first eleven months of the campaign (to June, 1944), it is reasonable to assume that the total of A.M. lire was less than the amount of metropolitan lire in the regions in which both circulated. I should estimate that, at the end of 1943, the quantity of A.M. lire was about one-third the amount of metropolitan lire in the same region and comprised about one-fourth of the total of all lira notes.[19]

As the Allied armies moved up the peninsula, the issue of military currency increased, and upon the capture of Rome the total was 18.8 billion. Thereafter, the increase was more rapid than it had previously been. In September, 1944, there were 34.4 billion outstanding, and at the

[18] At the close of 1943, the Allied armies held Sicily and the tip of the peninsula to a line not far north of Naples.

[19] From what is known of the number of Allied troops in Italy at the end of 1943 and of monthly disbursements, it is probable that no more than 9 billion A.M. lire were then in circulation. The area at that time occupied by the Allies normally held about 20 per cent of metropolitan currency, or about 32 billion.

time of the armistice the total was 61.3 billion. In order to analyze the inflationary force of this issue, the following data must be noted.

As the amount of military currency in circulation increased, the area over which it circulated also increased.[20] The proportionate increase in per capita circulation of military lire—the ratio between the Italian population of the area over which A.M. lire circulated and the total A.M. lire in circulation—was less than the relative increase in the quantity of military notes. Obviously, it is misleading to consider the proportionate change in military issue without noting that the currency circulated over an area of greater resources and population. Although the quantity of A.M. lire increased almost 600 per cent between December, 1943, and May, 1945, the ratio between military and metropolitan lire increased less than 50 per cent. This is shown in Table 10.

The comparisons in Table 10 indicate that if there had been no issue of military currency, the total amount of cash in circulation would have been from about one-fifth to one-third less. However, not all the military currency was a liability, either accepted or imputed, of the Allies, for, of the aggregate amount of 61.3 billion, 6 billion represented advances to the Italian government; and, although this amount is negligible in relation to the total of all cash, it is not insignificant in relation to the total of A.M. lire. Finally, it is to be noted that the actual amount of A.M. lire in circulation is open to question. The figure of 61.3 billion has not been clearly explained, either by the Allied finance authorities or by the Italian government. This amount could represent either the total amount of cash paid to troops (but exclusive of expenditure by military establishments for Italian goods and services) or the actual amount of lire spent by military personnel out of their pay and hence the amount held by Italians. This latter amount is less than the former by the sum of troop remittances, which vary between one-third and three-fourths of total troop pay, depending on the nationality of the soldier,

TABLE 10

LIRE CIRCULATING IN ALLIED TERRITORY

Date	Metropolitan*	Allied Military (In Billions)	Total	Proportion of A.M. Lire to Total Lire
December, 1943	31.7	9.0	40.7	.22
May, 1944	51.0	14.5	65.5	.22
June, 1944	57.3	18.8	76.1	.25
September, 1944	92.9	34.4	127.3	.27
May, 1945	142.3	61.3	203.6	.30

* At the dates noted the proportion of metropolitan lire in areas held by the Allies to the total of such lire in all of Italy was: December, 1943, 20 per cent; May, 1944, 30 per cent; June, 1944, 30 per cent; September, 1944, 40 per cent; and May, 1945, 50 per cent. These proportions are applied to the amounts of metropolitan lire given in Table 9 and the above quantities obtained.

the price level of the area in which he is stationed, and a number of other factors. Should the figure of 61.3 billion represent gross troop pay (the former amount), the quantity of A.M. lire in circulation[21] was much less than has been presumed to this point, and its direct inflationary significance was even less than has been maintained. If it be assumed, however, that there were 61.3 billion A.M. lire in the Italian economy at the end of the

[20] The term "currency circulation" is used in the sense of the total stock or supply of notes and not in the sense of currency with a velocity of greater than zero.

[21] The net increase in military circulation each month was equal to total troop pay minus the sum of remittances out of troop pay, remittances out of the proceeds of the illegal sale of Allied goods (which was considerable), and expenditure on goods and services supplied by military establishments (post exchanges, officers' messes, etc.).

war, the foregoing considerations are sufficient to cast doubt on the widespread assumption that the inflation in Italy was the product, wholly or in part, of the issue of military currency.

If A.M. lire never constituted more than 30 per cent of aggregate cash, they did not constitute the exclusive or even primary cause of the expansion of the currency.[22] The Mussolini government was primarily responsible for the expansion of the currency: between September, 1943, and May, 1945, it issued 110.9 billion. A portion of these notes circulated in the areas occupied by the Allies, for the Fascists did not as they retreated northward obligingly withdraw the paper money they had put into circulation. In addition to the metropolitan lire issued by the Fascists, the Rome government issued Lit. 12 billion, bringing the total increase in all lire to 184.2 billion between September, 1943, and May, 1945. That the Rome government issued no more than 12 billion is fortunate, but its restraint must not be laid to elevated motives in the realm of monetary and fiscal policy. As the Mussolini government withdrew, it took with it the printing presses, engraving plates, inks, and paper, leaving the succeeding government too poor to print money. Almost all the 12 billion which was issued was printed outside Italy.

Changes in all bank deposits in the whole of Italy during the years from 1938 to 1945 are shown in Table 11. In 1938, time deposits in commercial and postal banks totaled Lit. 63.8 billion, and demand deposits were Lit. 26.3 billion. At the end of the war, time deposits were Lit. 390 billion (6.12 times as great as in 1938), and demand deposits were Lit. 330 billion (12.55 times as great as in 1938). The largest increase in all deposits occurred after 1943, even though the value of the lira was then most seriously menaced by military defeats and political instability. Through the war period demand deposits increased at a greater annual rate than time deposits and at the end of the war were 85 per cent as large as time deposits as compared to 41 per cent in 1938. When demand deposits in southern and central Italy[23] are added to total currency in circulation in that area (which comprised Allied territory until a few weeks before the end of the war), the total of all money becomes Lit. 368.6 billion—of which military currency comprised less than one-sixth.

The increase in all bank deposits is of particular importance in analyzing Italy's wartime inflation. The enormous growth of demand deposits, both absolutely and relative to time deposits, was the result of the fiscal policy pursued by the Social Republic and the Rome government, both of which relied heavily on borrowing from the central bank and the commercial and postal banks. This is treated in detail below, and here it is only necessary to state that the deposit credits with the banks, upon which the governments drew, found their way to the commercial banks as deposits held by individuals. Government expenditures could become either demand or time deposits, but that the former increased relatively more than the latter was probably the result of uncertainty and the greater liquidity provided by deposits which could be withdrawn without notice. In the final period of the war the whole of the increase in demand deposits was the product of the government's policy of deficit financing, because the

[22] Concerning the velocity of A.M. lire see below, p. 323–24.

[23] I have assumed that the geographic distribution of demand deposits was the same as that of metropolitan lire.

normal business procedures utilizing bank credit had become almost extinct. The increase in time deposits is accounted for by changes in the velocity of circulation of all money and was a manifestation of the widespread practice of hoarding which began during the last years of the war.

The velocity of cash, however, did not change significantly over the country as a whole during the war period. The paradox of great hoards and of a constant velocity of cash through time is explained by the state of economic disorganization. In certain areas of the economy, trade was brisk (in a comparative sense, of course), and expectations of a continued decline in the value of the lira were acute, particularly among certain groups of the population; here the rate of turnover of money, especially of cash, was relatively high. In other areas where commodities were more scarce, where trade with the Allied military was very slight, and where there was little speculation over the future of the lira, the turnover of money was low and hoards were accumulated.

No empirical studies have been made of the velocity of different kinds of money and of cash, but certain generalizations can be made a priori and others from such data as are available. It has been estimated that, at the end of the war, there were about 100 billion lire in currency hoards throughout the whole of Italy.[24] In the last days of fighting, currency hoarding in the north, under Fascist rule, became so widespread that there resulted a shortage of the means of payment; in some provinces 90 per cent of the Bank of Italy notes in circulation disappeared. The commercial banks issued two types of nominative checks, *vaglia* and *assegni circolari*, which circulated as money substitutes.

The velocity of military currency, it may be presumed, was somewhat greater than that of metropolitan lire. In the agricultural areas of Italy, where much of the hoarding of cash was done, there must have been some resistance to the introduction of a new kind of money, especially since military currency was of a different color and size and bore many

[24] *Il Globo* (Rome), June 10, 1945.

TABLE 11*

BANK DEPOSITS, ALL ITALY, 1938–45

(In Millions of Lire)

Year	Time Deposits				Demand Deposits			
	Commercial Banks	Postal Banks	Total		Commercial Banks	Postal Banks	Total	
			Amount	Index			Amount	Index
1938	34,658	29,116	63,774	100	25,014	1,272	26,286	100
1939	36,201	31,894	68,095	107	30,317	1,545	31,862	121
1940	41,191	37,180	78,371	123	38,251	2,174	40,425	154
1941	50,893	46,781	97,674	153	50,478	3,055	53,533	204
1942	66,982	59,305	126,287	198	68,069	3,397	71,466	272
1943†	79,529	60,520	140,049	220	78,036	4,786	82,822	315
1944‡	.....	.....	.....	.....	.....	.....	.....	.....
1945§	240,000	150,000	390,000	612	315,000	15,000	330,000	1,255

* Source: Central Statistical Institute.

† September 30.

‡ Not available.

§ Estimate as of May, 1945.

English words. In the urban areas there was considerable counterfeiting of A.M. currency, which was easier to reproduce than metropolitan notes, and this made individuals wary of it (until a simple method was found of detecting bad notes). However, it would be easy, on a priori grounds, to exaggerate the greater velocity of A.M. lire. On the whole, there was no great resistance to their introduction, and it would be quite wrong to look upon A.M. lire as bad money driving good, metropolitan lire, into hoards.

The hoards which were accumulated were the result of other factors. It has been suggested that the most obvious explanation for hoarding is that the quantity of money in existence was greater than that required for the quantity of goods available for consumption; and individuals, finding themselves with larger money incomes, chose to save rather than to bid up prices. This is the fundamental reason for the low velocity of demand deposits, the accumulation of savings in banks, and the enormous cash reserves of the banking system. It also explains the large investment in government securities. Yet the explanation is no more than a truism, for it simply states that people hoarded because they did not spend. Why the Italian people, as a whole, made this decision is a question which offers little room for conjecture and is one which must be answered by themselves. That in a period when the supply of currency was increasing at an unprecedented rate, when the banks held an inflationary amount of cash, when real income was falling to half its pre-war value—to say nothing of war and revolution—the Italian people should have kept faith in their money is one of the minor miracles of the war. All the forces making for monetary disaster were present in Italy. Yet at the close of the war this disaster had been averted. Although the lira lost some 90 per cent of its value, it could have lost even more, and the course of depreciation had far to run before the money became worthless and total ruin was reached. The hoarding of the people, arising from what must have been a blind faith in the value of their lira, constituted the most effective restraint upon Italy's inflation.

III. FISCAL AND PRICE POLICY

The fiscal and price policy followed in the area of Italy occupied by the Allies imposed few effective restraints upon the inflationary process. The price policy could have been less effective, but the fiscal policy of the Rome government was itself one of the causes of the great increase in the quantity of money and a contributing factor to inflation. Only a small portion of aggregate expenditure was met by taxation. Greater reliance upon taxes was impossible or impracticable for a number of reasons. One very important reason was the breakdown of the government's administrative machinery. Another was the fact that the tax system was utterly inadequate for the purpose of controlling inflation. In peacetime when it operated under the most favorable conditions, the Italian tax system was archaic, unjust, and highly arbitrary, leaving such levies as that on income to be determined by bargaining between taxpayer and tax-collector. In wartime, when experienced officials had fled, when evasion grew to fantastic proportions,[25] and when com-

[25] The government relied for most of its revenue upon a national sales tax, but, because most transactions were conducted on the black market, this tax touched only a small proportion of total expenditure. Concerning the quantitative importance of black market expenditure see below, pp. 327–28.

munication between the provinces and the center of government was often totally lacking, the system of taxation produced just what might be expected of such a system: very little revenue, considerable expense of collection, and untold confusion.[26] Finally, there was an aversion to financing the costs of the war by taxation and a penchant for complicated, often bewildering, forms of economic control. (It may be noted that Italy was not unique in its aversion to taxes, and in its passion for nonfiscal regulatory devices it differed from other nations only in degree.)

As the price level increased and the government assumed greater obligations to provide relief to the victims of the war, only a small proportion of total expenditure was financed out of tax receipts. In the first six months of the fiscal year 1944–45, the tax receipts of the Rome government constituted less than 9 per cent of its total expenditure. In the following three months tax collections improved, and 17.6 per cent of total expenditure was met by taxation. Little information is available concerning the fiscal activities of the Social Republic other than the aggregate expenditures and receipts during the entire period of its existence. These indicate that its fiscal position was neither worse nor better than that of the Rome government. In twenty months, the Mussolini government spent about Lit. 360 billion, of which slightly more than Lit. 50 billion, or about 14 per cent, was paid out of tax receipts.

The Rome government utilized three principal methods of financing the approximately Lit. 100 billion excess of expenditure over tax income in the fiscal year 1944–45: the printing of paper money and the issuance of long- and short-term securities. The aggregate issue of metropolitan lire was, as stated above, Lit. 12 billion, or about 12 per cent of the total. The long-term securities, *buoni poliennali*, with a maturity of from five to nine years, accounted for approximately 35 per cent.

The principal long-term issue was placed on sale in April, 1945, on the eve of the liberation of the north. It had a maturity of five years and an effective rate of interest of 6.17 per cent. The course of this issue is interesting for what it reveals of the savings habits of the Italian people. The original objective was to raise Lit. 20 billion, which was subscribed within a few weeks. During the selling period the north was liberated and an enormous new market was opened, which, however, the Rome government did not immediately utilize. Because interest rates were lower in the north, arbitrage quickly developed and continued until the government extended the loan to the northern provinces on the terms prevailing in the south. The sales in the north were spectacular. By July, 1945, the subscription throughout Italy was Lit. 33 billion.

The short-term borrowing of the Rome government took four principal forms: treasury bills, *Buoni del Tesoro Ordinari*, running from one month to one year; drafts upon commercial bank deposits with the state treasury; drafts upon postal savings deposits with the treasury; and Bank of Italy advances. The total of short-term borrowing constituted about 53 per cent of the deficit difference between expenditure and tax receipts.

Changes in short-term indebtedness are indicated by Table 12, which shows the magnitude of short-term loans made by the Bank of Italy to the state. From

[26] In the spring of 1945 there were more than two hundred different kinds of taxes in Allied territory.

5 billion in June, 1938, the amount rose to 20 billion in December, 1940—an increase of 300 per cent. From 1940 to February, 1944, the short-term debt held by the bank increased 430 per cent. It is to be noted that the debt shown in Table 12 consists only of that held by the central bank. Were the government's short-term indebtedness to the commercial and postal banks included, the figure would be considerably larger. After February,

TABLE 12*

SHORT-TERM PUBLIC DEBT HELD BY THE BANK OF ITALY, 1938–44

(In Billions of Lire)

Date	Amount	Date	Amount
1938:		1942:	
June	5	June	42
December	6	December	57
1939:		1943:	
June	9	June	68
December	11	December	86
1940:		1944:	
June	12	February	106
December	20		
1941:			
June	30		
December	36		

* Source: Ministry of the Treasury.

1944, the short-term debt continued to increase, and, although the exact amount of the increase is not known, it was at least Lit. 60 billion.

The aggregate indebtedness, long- and short-term, of the Italian state (incurred by both the Social Republic and the Rome government) is shown in Table 13. From Lit. 138 billion in 1938 the public debt increased to Lit. 177 billion in 1940. At the end of the war, the total debt had increased to Lit. 850 billion, an increase of 380 per cent over 1940 and 616 per cent over 1938. The ever greater utilization of short-term borrowing is reflected in the fact that the short-term debt held by the Bank of Italy increased at a much more rapid rate than did the aggregate public debt.

The Italian reaction to the debt is of interest both for suggesting a rather cavalier attitude toward an obligation of this size and for the *reductio ad absurdum* of the conventional justification of public indebtedness. Italy was not without those who sought to allay the fears which might develop over a debt of such magnitude. One of these was the minister of the treasury, Signore Soleri, who, while hardly calling the debt a public blessing, sought to minimize its importance and to

TABLE 13*

ITALIAN PUBLIC DEBT, 1938–45

(In Billions of Lire)

Year	Amount	Year	Amount
1938	138	1942	315
1939	146	1943	446
1940	177	1944	707
1941	231	1945	850

* Source: Ministry of the Treasury. All figures as of June 30, except that for 1945, which is as of June 1.

dismiss its dangers. Soleri contended that if the debt were adjusted for changes in the general level of prices, it would be shown to be little more of a burden than the pre-war debt and that, if it were adjusted for the depreciation of the foreign value of the lira, the real burden would be even less. He concluded: "Therefore, substantially, the national debt, in terms of real values, has not increased."[27] Even if one overlooks the fact that the increase in the price level and the depreciation of the exchange rate were caused in part by the same forces which increased the debt —i.e., inflationary methods of finance— one can hardly refrain from observing that such a relationship between the debt and national income as that posited is valid only on the assumption that

[27] *Il Globo*, June 4, 1945.

money income will not decline. The fiscal burden of the Italian debt will not increase, in the sense of the service charges consuming a larger portion of total money income, only if money income does not decrease. Such a decrease will not occur only if the price level of Italy remains at an inflationary level—and no one has yet ventured this proposal. Rather, the same persons who dismiss the burden of the debt also agree that a drastic deflation is essential. If deflationary measures were successfully introduced and the pre-war value of the lira restored, the burden of the debt would be crushing—assuming, of course, that deflation were possible without some repudiation of the debt.

The control over prices in Italy was never very effective once the nation entered the war. Food prices increased 111 per cent between 1940 and 1942—an increase, however, which was small in relation to what followed. After the invasion of the peninsula the movement of prices was almost completely uncontrolled. Prices in Allied territory, under both Allied Military Government and Italian sovereignty, were fixed at the level which prevailed when the invasion began. This measure had little effect. Through the entire period from the invasion to the armistice, most prices were uncontrolled, and, with the exception of the prices of *certain* foodstuffs, rents, public utility services, and wages, little effort was made to control them. There was also no attempt made to ration commodities and services, with the exception again of a few foodstuffs. The most effectively controlled price was the rent of unfurnished residences. Partial control was exercised over the price of bread, pasta, oil, citrus fruits, and some fresh vegetables. Wholesale price control was confined to those commodities over the supply of which the government had some power. In buying other commodities at wholesale, the government itself usually had to pay uncontrolled (black-market) prices. Control over wages was more complete than that over wholesale or retail prices, especially the control over wages paid to Italian civilian employees of the Allied military.[28]

The ineffectiveness of price control is indicated by Table 14. This table shows the portion of total food expenditure actually made on the Rome black market during certain months between September, 1942, and May, 1945 (col. 1), the proportion of total expenditure which would have had to have been made on the black market if a family had maintained a fixed food budget (col. 2), and the relative quantity of this food budget which was obtainable only on the black market (col. 3). For example, in June, 1944, when Rome was taken, the working-class family of average income made 87 per cent of its total food expenditure on the black market; if it had sought to purchase the same foods which it purchased in 1940, it would have had to make 97 per cent of its total food expenditure on the black market and from this expenditure would have obtained 83 per cent of the food it consumed. The disparity between the second and third columns reflects the very large difference between controlled and uncontrolled black-market prices. Because legal prices were very much less than black-market prices, the quantity of rationed food obtained from a given small expenditure was much greater than that obtainable on the black market.[29] In May, 1945,

[28] But see below, p. 332.

[29] Only small expenditures are comparable, because only small expenditures could be made on the legal market.

actual relative expenditure on the black market was but 1 per cent less than in the previous year, while assumed expenditure had fallen to 84 per cent and the relative quantity of food purchasable only on the black market to 69 per cent. The decline in the latter figures was the result of an increase in the quantity of food available through the rationing system, which in turn was the outcome of an upward revision of legal prices. The comparatively constant figure for actual expenditure denotes an increase in the aggregate quantity of food purchased. Because of an increase in the quantity of food supplied, an increase in prices, and increased incomes, expenditure in both markets increased. Evidence of the increase in the amount of food rationed is found in column 3 of Table 14, which shows that consumers could obtain in May, 1945, 31 per cent of the necessary food on the legal market but in June, 1944, could obtain only 17 per cent. That prices increased has been shown by Table 1 and in the following section, in which changes in income are noted as well (cf. Table 18).

TABLE 14*

RELATIVE EXPENDITURE FOR FOOD ON THE ROME BLACK MARKET AND RELATIVE QUANTITY OF FIXED FOOD BUDGET AVAILABLE ONLY ON THE BLACK MARKET

Date	Per Cent Actual Expenditure (1)	Per Cent Assumed Expenditure (2)	Per Cent Quantity Available† (3)
1942:			
September..	‡	65	61
1943:			
September..	.....	90	77
October.....	.....	86	73
November..	.....	95	80
December...	.....	89	69
1944:			
January....	.....	86	69
February....	.....	95	72
March.....	.....	94	77
April.....	89	96	79
May.....	87	98	87
June.....	87	97	83
July.....	88	97	78
August.....	87	93	76
September..	83	95	74
October.....	84	95	76
November..	89	94	72
December...	86	95	75
1945:			
January....	92	96	76
February....	89	96	75
March.....	87	91	69
April.....	85	85	63
May.....	86	84	69

* Source: From data of *Notiziario Economico-Sindicale* (Rome: General Confederation of Italian Labor), Vol. I, Nos. 1–8; Vol. II, Nos. 1–4; and Labor Subcommission, Allied Commission, Italy. Columns 2 and 3 are based upon a fixed food budget of the type used in computing the retail food price index of Table 1. The budget is that of a family of five persons, the equivalent of 3.73 adult consuming units each obtaining 2,200 calories daily.

† The quantity is measured in kilograms.

‡ Not available.

Less complete data are available concerning the effectiveness of price control throughout Italy. The Central Statistical Institute has estimated the proportion of total food expenditure made on the black market in each month between September, 1944, and May, 1945. In the former month expenditure on the black market was 63 per cent of total expenditure and in the latter month 43 per cent —a movement which is consistent with that observed in assumed expenditure in Rome. However, the method[30] which the Institute uses underestimates price increases and overstates the effectiveness of price control. As indicated above, there was no control over other prices affecting the cost of living except utilities and certain rents. All expenditure on clothing, household furnishings, and miscellaneous items was made at uncontrolled prices.

IV. PRICE RELATIONS

The four final tables of this study are concerned with the depreciation of the lira and with price relations. Table 15 is a

[30] See above, n. 15.

statement of the depreciation of the lira in terms of wholesale prices, retail food prices, and the market price of gold. As measured by wholesale prices, the lira lost 89.41 per cent of its value (i.e., in May, 1945, 100 lire were required to buy what 10.59 lire purchased in 1938). This figure of depreciation is subject to the qualifications of the wholesale index, which, as noted above, understates the actual increase in prices.[31] The depreciation of the lira is much greater when measured by the reciprocal of the index of retail food prices. In these terms the lira lost 97.09 per cent of its value. An even greater depreciation is shown by changes in the gold value of the lira, the decline between 1938 and the end of the war being 97.92 per cent. In the making of the lira price of gold a large speculative element enters which is more pronounced than in the formation of wholesale and retail prices.[32] In April, 1945, the gold price of the lira was considerably higher than in the following month, when the optimistic reports from the north produced a wave of selling. When, however, a month after the armistice this optimism proved to be baseless, the price of gold increased and the gold value of the lira again declined.[33]

Table 16 is an effort to express the lira value of the dollar in terms of the purchasing power of the two currencies. It is subject not only to the theoretical limitations of the purchasing power concept but as well to the limitations of the index numbers of Italian and American prices. Despite these qualifications, the values obtained are believed reliable for the purpose of the table, which is not to give a statistically precise exchange rate but to indicate its movement and the approximate magnitude of overvaluation. Parity is expressed at both wholesale and retail food prices. It is to be observed that in every period but 1943 the parity value of the lira at wholesale prices was less than the fixed value;[34] that is, the number of lire required to purchase a dollar was less than the number which would have been required had the rate been determined by the relative purchasing power of the two currencies. A comparison of retail food prices in Italy and the United States also indicates overvaluation, although it is interesting to note that, when the Allies fixed the exchange rate in 1943, it was almost exactly equal to parity expressed in these prices. But if the lira was worth, in rela-

TABLE 15*

DEPRECIATION OF THE LIRA, 1938–45

DATE	IN TERMS OF		
	Wholesale Prices	Retail Food Prices	Market Price of Gold
1938	100.00	100.00	100.00
1939	95.87	96.15	95.81
1940	82.17	81.30	97.61
1941	73.64	72.46	†
1942	65.53	38.61	†
1943	38.17	17.83	†
1944	11.21		
September	†	4.82	2.51
October	†	4.43	2.67
November	†	3.93	2.70
December	†	4.49	2.37
1945:			
January	†	3.79	1.68
February	†	3.52	1.47
March	†	3.24	1.47
April	†	2.94	1.71
May	10.59	2.91	2.08

* Sources: Reciprocal of wholesale price index of Central Statistical Institute; of retail food price index computed by writer from Institute's data; of official gold prices, 1938–40, and of black-market price of gold sovereign quoted in *Il Globo* (Rome), 1944–45.

† Not available.

[31] See above, p. 310.

[32] See below, p. 330.

[33] In June the index of depreciation in terms of gold was 1.51.

[34] All 1928 values are equal by definition.

tion to food prices in the two countries, one cent when the Allies invaded Italy, it was worth about one-fifth of one cent when the war ended. In relation to wholesale prices, the index of which in Italy understates the extent of inflation, the lira was worth about two-thirds of one cent. Whether the true rate is represented best by retail food prices or by wholesale prices, the fixed rate constituted a windfall to Italy and, conversely, a tax on Allied expenditure in the country. Whether or not the overvaluation shown in Table 16 is exact, there can be little doubt that the lira was overvalued

TABLE 16*

LIRA EXCHANGE

(Lire per Dollar)

	1938	1938	1939	1940	1941	1942	1943	1944	1945†
Market or fixed rate.....	19.02	19.00	19.23	19.80	19.71	19.01	100.00	100.00	100.00
Parity at wholesale prices.	19.02	22.30	23.72	27.14	27.26	27.06	44.60	150.37	157.33
Parity at retail food prices	19.02	25.20	27.01	31.27	32.33	51.45	100.18	409.96	512.97

* Source: Based on wholesale prices of United States Bureau of Labor Statistics (changed to 1928 base) and of Central Statistical Institute of Italy and on retail food prices of B.L.S. and from series computed by writer.

† Average of first five months.

by *some* amount, and there is no reason to accept Italian claims that the *dollar* was overvalued.

Independent evidence of overvaluation is provided by Table 17, which shows the lira price of foreign currencies on the Rome black market. Although trading at these prices was nominally illegal, little effort was exerted to prevent it and none to conceal it; indeed, the central bank and the economic press regularly reported the rates. The quotations, then, are not influenced by any immediate risk arising from illegality. Both the pound and the dollar quotations are substantially above the fixed rates, which during the period surveyed were 400 and 100, respectively. The highest price paid for the dollar was Lit. 505, in the second week in February, 1945 (not shown in the table), and the highest quotation for the pound was Lit. 1250 at the same period. Upon the declaration of the armistice both pound and dollar fell in price, but in June and July the rates increased again and approached those prevailing in the first months of the year.

Because the black market in currency is extremely sensitive to expectations, the quotations contain a large speculative element, but they are not independent of the values of the currencies as measured by their purchasing power. In the price of gold a somewhat different kind of speculative element is at work, since its price increases are not restrained by the possibility of all foreign paper currencies being declared irredeemable. Should this occur, the gold can be melted, a convenience not enjoyed by holders of paper. For this reason the price of gold is more sensitive to present and future valuations.

Of different significance is the pound-dollar ratio shown in the last column of Table 17. It represents the dollar value of the pound (dollars per pound) on the black market. At one time the pound was worth as little as $1.79 (January, 1944), and its highest value was $3.85 (April, 1945), and at no time was the ratio equal to the *legal rate* of $4.00 per

pound.[35] The ratios shown in the table are consistent with the presumed overvaluation of the pound in relation to the dollar; they were affected also by the different expectations entertained by Italians concerning the future value and redemption of the two currencies.

TABLE 17*

FOREIGN-CURRENCY QUOTATIONS ON THE ROME BLACK MARKET, 1944–45

DATE	LIRA PRICE OF			
	British Pound	Dollar	Gold Sovereign	Pound-Dollar Ratio
1944:				
January	700	390	7,000	1.79
February	775	410	8,000	1.89
March	750	400	8,750	1.88
April	825	400	10,600	2.06
May	875	400	11,660	2.19
June	750	350	7,500	2.14
July	650	220	6,000	2.95
August	620	215	5,500	2.88
September	625	210	5,750	2.98
October	580	208	5,400	2.79
November	585	208	5,350	2.81
December	725	230	6,100	3.15
1945:				
January	960	375	8,600	2.56
February	1,000	415	9,800	2.40
March	1,100	425	9,850	2.58
April	1,175	305	8,450	3.85
May	780	267	6,950	2.92

* Source: Bank of Italy and *Il Globo*.

The relative movement of wage income and food prices is shown in Table 18, which is the best available approximation to an index of real wages in Italy. The average monthly income shown in the table refers to the average net income of a working-class family in Rome, and the food prices measure the cost in Rome of a fixed food budget.[36]

[35] This is the legal rate implied by the lira-pound–lira-dollar fixed rates, which were 400 to 1 and 100 to 1, respectively.

[36] This is the same budget upon which columns 2 and 3 of Table 14 are based.

The purchasing-power income in terms of food is the ratio of income to prices (multiplied by 100). This index fell to its lowest value—9—in May, 1944, and at the close of the war was 41 (an increase of about 350 per cent in twelve months), but the latter value was less than half those prevailing in 1940 and 1941. Dur-

TABLE 18*

FAMILY INCOME AND FOOD PRICES, WORKING-CLASS LEVEL, ROME, 1940–45

Date	Average Monthly Income†	Retail Food Prices	Purchasing Power of Income in Terms of Food
1940:			
November	100	100	100
1941:			
March	103	107	96
1942:			
September	119	197	60
1943:			
April	136	‡	‡
July	147	410	36
December	202	537	38
1944:			
January	202	510	40
February	202	781	26
March	202	1,131	18
April	202	1,465	14
May	202	2,355	9
June	239	2,034	12
July	239	1,859	13
August	335	1,571	21
September	335	1,579	21
October	335	1,501	22
November	335	1,511	22
December	335	1,763	19
1945:			
January	335	1,771	19
February	335	2,032	16
March	696	2,203	32
April	696	2,150	32
May	696	1,915	36
June	696	1,692	41

* Source: Computed from data of General Confederation of Italian Labor and Labor Subcommission, Allied Commission, Italy.

† Net income, consisting of daily wage plus all allowances and subsidies.

‡ Not available.

ing the last twelve months shown in the table the purchasing power of income did not increase continually but fluctuated and finally rose as a result of increases in the legal wage scale. The first column of the table reflects the discontinuity of wage changes as compared with changes in food prices; in the designated period legal wage rates and supplementary income (bonuses, indemnities, etc.) changed only by decree. Although wages were controlled more effectively than food prices, the control was not perfect, and, despite the large number of unemployed workers, employers offered disguised wage increases in order to obtain certain kinds of labor. Moreover, workers found a number of ways by which to increase their income. A study made in the summer of 1944 indicated that many working-class families were able to supplement their wage earnings and that their actual income was frequently twice as great as their net wage income.[37] It is unlikely, however, that the aggregate in-income of most working-class families was increased in this proportion. It is improbable that the true value of the index was greater than 50 at any time after September, 1942. At the end of the war the average working-class family could buy about half as much food as it could buy in 1940.

The disparate movement between wages and food wages and between retail and wholesale prices indicates the effect of the Italian inflation on the distribution of incomes. Those who suffered most severely were the many whose incomes increased only negligibly during the inflationary period: veterans of World War I who depended upon state pensions and the aged and infirm who relied upon a fixed income. Government employees fared slightly better, for they obtained an increase in salary in the spring of 1945. Wage-earners were also affected harshly, for increases in living costs were much more rapid than wage increases. Of these three groups, the workers suffered least, but their income declined in greater proportion than did the aggregate real income of the country. This is clearly implied by the decrease in the purchasing power of income in terms of food which fell less than income measure in terms of the prices of all other items in the living budget with the exception of rent and utilities.[38] The farmers, it is probable, fared better than the wage-earners in terms of the relationship between their money income and the prices of nonagricultural products. Because many of them sold their farm products at illegal prices, their money incomes increased, although these prices did not increase as much as, say, the price of clothing the farmer purchased. However, the relation between farm and nonfarm prices does not accurately denote the position of the farmer because of the great decline in imputed income, which was the result of the destruction of farm property. Those who benefited by the inflation in Italy were the black-market operators and others engaged in activity at the edge of the law or beyond it. In these nether regions astonishing fortunes were accumulated.

V. CONCLUSIONS

Summary of the inflationary process.—Between 1938 and 1945 wholesale prices in all Italy increased at least 844 per cent. Retail food prices in central and southern Italy increased 3,342 per cent and in northern Italy about 1,700 per

[37] *Notiziario-Economico* (Roma: Confederazione Generale Italiana del Lavoro; Camera Confederale del Lavoro di Roma e Provincia), I (August, 1944), 3.

[38] Assuming the worker's residence was not destroyed.

cent. In the same period the total of all money increased 1,217 per cent. Demand deposits increased 1,155 per cent, and currency 1,284 per cent. Of the total currency in circulation, Allied Military lire comprised no more than 30 per cent at any one time and no more than 17 per cent of total money (currency plus demand deposits). The velocity of circulation of currency was approximately constant through the seven-year period, the widespread hoarding in some regions being offset by increases in velocity in other areas. Real income produced declined 52 per cent.

Summary of causes of the inflation.—The primary cause of the inflation in Italy was the increase in the quantity of all money, the decline in real income being of the second order of magnitude. The increase in the quantity of money was largely the result of increased issues of Bank of Italy notes by the Social Republic and of the inflation of demand deposits deriving from government borrowing of the banks. Had there been no decline in real income, the increase in the supply of money was sufficient to raise the price level some 1,100 per cent (assuming no change in velocity). Had there been no increase in the supply of money (or change in velocity), the decline in real income was sufficient to have raised the price level not much more than 100 per cent. The disorganization of the economy contributed to the inflationary process by its effect on the utilization of resources and the level of real income.

The inflation in Italy did not begin upon the invasion of Sicily or of the peninsula but had already started when the country became a theater of war. After the invasion, inflation gained force and prices increased more rapidly than before. In the inflationary process, however, the issue of military currency was not an important element.

Serious though it was, the inflation in Italy could have been more disastrous. That it did not run its course to a complete repudiation of the lira, *de jure* or *de facto*, is attributable to the faith of the Italian people in the ultimate value of their currency—a faith manifested in the enormous accumulation of currency hoards which in themselves constituted the most effective restraint on the inflation. A subordinate mitigating factor was Allied policy toward Italy. Whatever the sins in the political realm, it is indisputable that the material assistance rendered the country by its conquerors was considerably more than was required in order to "prevent disease and unrest"—by which criteria such assistance was ostensibly given. This is not to say that the relief provided Italy was adequate, or that more should not have been given, but to observe that without it the inflation in Italy would have been more devastating than it was.

CHICAGO, ILLINOIS

THE DILEMMA OF LIBERAL ECONOMICS

M. BRONFENBRENNER

I

I REMEMBER sitting one summer evening on a bench in St. Louis' Forest Park when a gentleman, somewhat the worse for liquor, heaved into sight and inquired the way to the municipal zoo. The zoo lay to the right, and I pointed to the right. The gentleman, however, saw fit to lurch to the left, where he encountered a waist-high railing and fell on his face. Rising unsteadily, he addressed me with the clerical dignity of outraged alcoholism. "A big help," he decided, "*you* turned out to be!"

This little episode illustrates with peculiar aptness the relation existing permanently between economist and layman, particularly the repute the economist enjoys among laymen when his advice is ignored with the most disastrous consequences. A big help we turn out to be.

So, in the current economic turmoil, one disconcerting feature to the economist is the meager influence exercised by liberal economic thought, coupled with the certainty of additional blame and ridicule when the solutions adopted prove to be something less than utopian. Economic thought has in fact progressed mightily during the last fifteen or twenty years. The post-1929 depression in particular set off perhaps the most rapid advance since the Ricardian period set off by the Napoleonic Wars. There has also been the usual unfortunate concomitant of change, a heightening of disagreement and controversy both apparent and real. In spite of these advances, and partially because of their controversial accompaniment, mention of the word "economist" to the public still brings forth the same old collection of mutually inconsistent stereotypes. There is the academic obscurantist and fuddy-duddy, congenitally incapable of agreeing with anyone on anything. On the right there are the capitalist parrot, eternally croaking "Supply and demand," and the hired apologist, for sale to the highest bidder. On the left there are the wild-eyed radical, a bomb in one hand and Karl Marx in the other, and his insidious bureaucratic brother with dictatorial designs on the Constitution, Home, and Mother. Nowhere in economics is there a basis for even tentative conclusions for policy. No social function exists for the economist save as scapegoat for economic errors committed in the name of political feasibility by transplants from business, politics, engineering, the law, or elsewhere.

Particular caricatures may fit particular economists, but the low repute of the profession as a whole is as unfortunate for the country as for the economists. It is certainly due in some measure to the current internecine clash between two flourishing schools of liberal economics. The dilemma, the tragicomedy of the situation lies in this: both schools are at least partially right; neither is completely wrong. Their doctrines are seldom completely inconsistent; their conflicts are of emphasis, of degree, of personal ambitions. The dilemma must be solved and the two schools synthesized on a basis of approximate equality if liberal economics is to recover after its present revival the

influence it enjoyed during the half-century following its last great flowering.

II

"Liberal economics" is a weasel term, defined most clearly when contrasted with doctrines it is designed to oppose. I for one would define economic liberalism as opposition to each of two sets of principles. Economic liberalism opposes, first of all, collectivism in all its forms—Socialist, Communist, or Fascist. It would minimize government operation of industry, government fixation of relative prices, and quantitative government regulation of capital allocation as permanent (peacetime) features of the economy. It opposes not government control as such but government control of these particular crucial factors exercised in these particular crucial ways. (A government which controls the volume of currency and credit, or the price level, or the size of the national income, or which insures a national minimum of subsistence to everyone, or which prevents monopolistic restrictions on output, may be every bit as "big," as strong, and as far removed from conventional laissez faire as a socialist state, while still retaining the "liberal" label by this definition.)

Economic liberalism opposes, secondly and equally strongly, all forms of "pressure economics," all identifications of the private interests of one group or bloc with those of the entire economy. It makes no difference whether the group or bloc be organized labor, organized agriculture, organized business management, or any subdivision or combination of these. The interest of any group may be served from time to time by artificial restrictions on the amounts of goods and services sold or bought for the sake of more profitable price relationships. On such occasions the liberal economist will always oppose the restrictions in the name of maximum production in which general welfare does consist, unless the restrictions can be proved to be temporary and to induce greater output in the long run.

III

Liberal economists, we have said, are reduced in influence and effectiveness by their division into two schools of thought. Of these schools, the Keynesian is the more radical and breaks more sharply with economic tradition. For our present purposes its principal doctrines are derivable from its analysis of employment. They are summarized here with relation to the employment of labor, though they apply with slight modifications to the employment of equipment as well.

Classical economics maintained full employment to be the natural consequence of free competition on the labor market. Lord Keynes and his followers insist that, for so long as workmen in considerable numbers prefer unemployment to cuts in union or customary wage rates, no forces whatever operate on the labor market to bring about full employment. The argument can be put more technically: Keynesians claim that "economic equilibrium" may be reached at any level of employment, as against the classical position that full employment is necessarily involved.

Even if workmen can be forced to take wage cuts, Keynesians insist that cutting wages is an impractical method of increasing employment. For if wages are cut, prices will either fall proportionately or they will not. If prices fall proportionately, almost all that has been accomplished is a concomitant lowering of money prices, wages, and incomes which may go on indefinitely in a downward

spiral of what has come to be called "hyperdeflation." If prices fall less than proportionately with wages, matters will be even worse in what Keynesians consider the normal sequence of events. There will then almost certainly be inadequate purchasing power to clear the market; output and employment will have to fall farther. (The third case—prices falling more than proportionately—is of no practical importance in a depression, where few firms will be in position to afford it even briefly.)

Once approximate stability has been reached at a low level of employment, Keynesians see the way to increase employment as an increase in money incomes which does not increase business costs at the same time. A variety of programs involving government expenditures on a large scale have been suggested for this purpose. They include public works, consumer credits, pay-roll subsidies, underwriting of business output, and many others. The same effect may be secured by inducing private individuals and corporations to spend more on their own account, either out of hoards or out of borrowed funds. (The "inducement" may appear as fiscal terrorism to the induced parties, if it takes such forms as taxes on undistributed profits, on money, or on bank balances.)

The increased money incomes, however secured, are expected to finance further output and employment without substantial price increases. Only after full employment is reached in certain major areas called "bottlenecks" will the higher level of demand exert serious inflationary pressure upon prices. In general, however, employment and (secondarily) income are substituted for prices as guides for depression monetary policy.

Keynesian opposition to deflationary cuts in wages and incomes has led to certain heresies in the theory of international trade. Some Keynesians, notably the group at Oxford University, condone not only high tariffs but currency depreciation, trade discrimination, exchange controls, and the various devices of "neo-protection" *à la* Hjalmar Schacht for a high-employment country in a low-employment world. These devices are advocated to insulate the high-employment country from the pressure exercised by competition with the products of countries which have permitted their own employment, wages, and prices to fall. This aspect of Keynesian doctrine underlies a great deal of British opposition to the proposed American loan because of provisions hampering British freedom of action in international trade. (Lord Keynes himself headed the British delegation which negotiated the loan, but certain of his followers are more pessimistic than he regarding American prospects for maintaining full employment, and see the United States as a major deflationary force dragging the postwar world economy into depression.)

More criticism of Keynesian economics has centered on the so-called "stagnation thesis" than on any other portion. This is in reality a separate series of propositions maintained with greater firmness by American Keynesians than by Lord Keynes himself or by his leading British disciples. It has come to be associated particularly with Professor Alvin Hansen of Harvard. The stagnation thesis is bound up with Lord Keynes's view of interest as primarily an inducement to abandon the security of holding one's savings in cold cash. (Classical economists treated interest rather as an inducement to save in the first place.) Once the frontiers of a country have been closed and population growth slows down, stagnationists claim that the

profitability of additional investments there falls off. If the amount of capital in the country continues to increase, this profitability eventually becomes insufficient to entice savers to take the risks of productive investment. Their savings, individual and corporate, accumulate in large idle balances, neither spent nor invested. The banks may also hold large idle (uninvested) balances, called technically "excess reserves." Each year's net increment of idle funds results in an additional downward drag of goods unsold or sold at a loss, since the efficient functioning of the price system depends on the value of each year's output being spent for either consumption or investment purposes. Steady drains of goods unsold or sold at a loss mean steady downward pressure on incomes, output, profits, and employment. This downward pressure we have remedied only temporarily by booms and by war. We might conceivably remedy it more permanently under the economic climate of a "business" government, but such a government would hardly prove "humanitarian" enough to secure the farm and labor support necessary for its own continuance in office under democratic institutions.

Short of war and short of dictatorship, we seem to have failed to check more than temporarily continuous downward pressure on income, on output, on employment. The opprobrious epithet "stagnation" refers to this state of affairs with particular reference to its manifestation during the decade preceding World War II.

The Keynesian believes that stagnation can be remedied on a permanent basis within the liberal economy. Its implications to him are perfectly clear. From stagnation he infers a *permanent* tendency toward underemployment in present-day capitalism, a *permanent* need of measures to combat it. It is no longer a question of pump-priming every ten years or every generation. It is no longer a question of inducing additional private investment, if private investment is increasingly unprofitable. The slogan is now a permanently high volume of *compensatory government* spending, as an offset to the great volume of saving that results naturally from a prosperous economy. A permanently unbalanced budget and a constantly rising national debt are possible, but not necessary, consequences of this policy.

There has been an unjustified tendency in conservative circles to write off Keynesian doctrine in general and the stagnation thesis in particular as "crackpot," without any examination of the formidable body of statistical evidence adduced in their support, particularly in connection with the estimation of the requirements for stable postwar full employment. (From the radical side, Marxists have, of course, been quick to note a family resemblance to the Master's "falling rate of profit.") In further justice to the stagnationists, it should be pointed out that none of them regards the thesis as proved. They desire only that American economic legislation make explicit provision against the possibility that it is true. This the Wagner-Murray "Full-Employment" Bill was specifically designed to do in its original form.

Keynesianism has been called illiberal. Its ranks include a small minority of admitted collectivists whose interest has special reference to possible application in a socialist state and a more influential "Oxford Group" who propose to supplement it with direct controls over prices, wages, and investment. It was also possible in the pre-Munich England of 1938 for a British economist to write a *Re-*

covery of Germany, interpreting Herr Hitler and Dr. Schacht as Keynesians conscious or otherwise. The Keynesian entourage has further attracted a number of labor economists who have found arguments against wage cuts twistable into arguments for wage increases regardless of the level of employment. Nonetheless, the great majority of Keynesians in Washington, as well as outside it, qualify as "liberal economists" under the definition used here.

Such is the doctrine of John Maynard Keynes, whom his enemies have called "the Englishman who rules America." Such is likewise the doctrine underlying the Beveridge Plan and Secretary Wallace's *Sixty Million Jobs*, the doctrine of the late National Resources Committee and of the Full-Employment Bill—in fact, of the later New Deal as a whole.

IV

In closer continuity with the previous evolution of neoclassical economics are the principles of the second group of liberal economists, who have been classified together as the "price-flexibility" school. The economic system they advocate is, in fact, the very "free enterprise" whose theoretical virtues conservative-minded restrictionists have so long and fallaciously cited in support of certain quite inconsistent institutions of their own. (On this, see Mr. Justice Arnold's *Folklore of Capitalism*.) No one man and no one work form the focus of their attention and loyalty to the extent that Lord Keynes and his *General Theory of Employment, Interest and Money* have done for the Keynesians. It is accordingly even more difficult to speak accurately of the school as a school or to outline views held in common by its members.

Price-flexibility economists look on depressions as due in large part to differences in the rates at which prices adjust to each other, particularly in the downward direction. They isolate one group of prices, including the prices of most final products, particularly agricultural, which is flexible and moves readily. They find another group of prices, including wage, interest, and utility rates, rents, and the "administered" prices of many nonagricultural raw materials to be slow to fluctuate and particularly slow to fall. The severity of depressions is due to the adherence of these prices to their prosperity levels in defiance of downward movements in the rest of the economy. Particularly condemned is the maintenance of these high prices during periods of unemployment by artificial restrictions on admission to unions, productivity of labor, industrial output, etc.

Of the doctrines summarized as Keynesian in the last section, price-flexibility economists would agree only with the first, the indefinite persistence of unemployment when unemployment is preferred to wage cuts. (They would not call such a situation "equilibrium," however.) They would join issue with the second series of Keynesian propositions —the futility of wage cuts, particularly the likelihood of a downward spiral of hyperdeflation if prices fall as well. They hold rather that wage and price cuts during depressions will bring about additional consumption and investment out of idle balances accumulated during and before the depressions, and so start the ball rolling uphill once more. The investment involved will be largely the repair and renovation of equipment which had been allowed to deteriorate and obsolesce; little outright plant expansion is expected at the bottom of a slump.

To price-flexibility economists the stagnation thesis is anathema. They see investment opportunities yielding attrac-

tive returns as existing abundantly at all times and in all countries, in industries new and old. The closing of geographical frontiers and the deceleration of population growth and irrelevances. Investment opportunities exist, they say, but are not exercised. Not exercised because of fear. Fear of oppressive and discriminatory tactics by restrictionist competitors. Fear of trade-unions which consume profits by raising wages while refusing to cushion losses by lowering them. Fear of progressive income taxation with inadequate carry-over of losses, which has the same effect as aggressive unionism upon concentration of risk in one or in a few productive enterprises. These fears, taken together, make up the economic climate which produces the symptoms diagnosed incorrectly as economic stagnation.

The cardinal economic virtue in all liberal economics is production of goods and services. But whereas to the Keynesian the original economic sin was deflation, to the price-flexibility economist it is restriction of output to raise prices. It is then natural to find price-flexibility theorists more interested than Keynesians in strong measures of control over industrial concerns and associations which restrict production. These concerns and associations may have much less than 100 per cent monopoly power. The controls proposed may result in some slowdown of economic progress and confine operations to firms of less than optimum size in some industries, but such considerations are of secondary importance. Price-flexibility economists advocate strict enforcement of existing antitrust legislation, civil and criminal. They would go further and provide additional teeth, particularly extension to trade-unions and agricultural associations. They see in "stability" a menace, meaning as it frequently does price rather than output stability, and consider the price-cutter, the "chiseler," a worthy citizen deserving special protection. In international economics they favor lower tariffs and freer trade primarily as checks on monopoly and restriction by domestic producers. They have led in the gathering opposition to international cartels and have been prominent in the exposure and denunciation of clandestine "interstate tariffs" which have been erected in support of local monopolies in domestic trade.

It is easy but erroneous to regard price-flexibility economics as merely a revival of the "trust-busting" of the Theodore Roosevelt administration. It is not opposed to big business on grounds of size. True, a small business cannot raise prices by itself by cutting its output as a larger, more monopolistic concern may be able to do. Yet in many fields, notably retailing, existing restrictive and price-fixing devices are the handiwork of the independents in associations assembled, while the larger chain stores wish lower prices and larger volume. In the controversy of chain versus independent retailer, the trust-buster tends to favor the independent, while the price-flexibility economist concentrates his fire on sales restriction and price maintenance and not the size of the sales-restricter or the price-fixer. Price-flexibility economists, furthermore, are definitely not interested in repeating the error of replacing single giant concerns by small numbers of alleged "competitors" whose competition is tempered in practice by extreme cooperation.

Such is the price-flexibility school. Best known of its adherents are perhaps Mr. Justice Thurman Arnold (*The Bottlenecks of Business*), Professors Friedrich von Hayek (*The Road to Serfdom*) and

Henry Simons (*Positive Program for Laissez-Faire*), former President Eric Johnston of the United States Chamber of Commerce, and the late Wendell Willkie. It has been the leading economic philosophy of such diverse bodies as the Department of Justice, the Temporary National Economic Committee, and the Committee for Economic Development. Mr. Herbert Stein's prize essay in the Pabst "Full Employment" contest of 1944–45 presents in two thousand words an uncompromising application of price-flexibility thinking to the problems of reconversion and postwar full employment.

No more than the Keynesians have price-flexibility economists escaped suspicion of the genuineness of their liberal views. The suspicion has come from the political Left, while suspicion of the Keynesians came from the political Right. The sincerity of price-flexibility economists' opposition to restrictionism by trade-unions has never been questioned, but the accusation has been widespread that their crusading zeal goes no further, that their opposition to restrictionism by business management is largely a blind. Thus we find price-flexibility looked at askance as reaction, special pleading for management, labor-baiting, even potential or unconscious fascism. No price-flexibility writer has yet been accused of socialism or communism, though practical businessmen have been known to wonder whether socialism might not be preferable to such individualistic individualism with the soft mattress of monopoly removed.

V

It is much too easy to criticize an economic theory by calling it "theoretical," thereby rendering it "impractical," "unworkable," or positively "visionary." Actually any theory that "looks fine on paper" but "doesn't work in practice" is bad theory, fallacious or incomplete or based on false premises. If the unfavorable critic has any intellectual self-respect, he must point out what the fallacies or incompletenesses or false premises may be and in more specific terms than failure to account for or come to terms with "Americanism," "the human element," or "the will of God."

In the case of pure Keynesianism, four principal gaps seem to block practical success; two of these relate to wages and prices, the other two to finance. The most interesting point for us to notice is how neatly the first pair can be filled when price-flexibility herbs are compounded in the Keynesian dose. For these first two gaps, pertaining as they do to wages and prices, are bound up intimately with the reactions of restrictionist unions and other price administrators.

1. Keynesian hopes to direct monetary expansion into increases in output rather than prices depend absolutely upon the constancy of individual wage rates until full employment is reached in their several trades and on the constancy of product prices until forced up by rising wages and other costs. This is only one possible reaction of labor and industry to increased demand. It is the expected reaction under free competition, but not necessarily the expected reaction in a world in which both labor and industry are organized. It is a simple matter for a union to find both ethical and statistical pretexts for insisting on wage increases for its employed members even while unemployed workers remain in the trade or are anxious to enter it at the wages prevailing. It is almost as easy for an organized industry to increase its prices before its costs rise. Keynesianism may therefore lead to a rash of strikes, sitdown and

otherwise, of both capital and labor, terminating in what is called "underemployment inflation." Or underemployment inflation may come immediately and peacefully, without recourse to strikes. It requires only sufficient firmness and selfishness in either organized labor or organized industry or both.

In the patriotic fervor of wartime expansion, underemployment inflation was in fact almost avoided despite the efforts of John L. Lewis (whose unenthusiasm for the war is not without significance in this connection). Wartime experience has led some Keynesians to minimize the probability of underemployment inflation in peacetime as well, but it remains to be seen whether a "moral equivalent for war" exists in this economic field. The haste of certain unions to strike for wage increases in 1945–46, with unemployment rising and a great body of veterans unabsorbed into the labor market, gives no grounds for optimism.

2. Even if underemployment inflation is avoided, full employment will seldom be reached in all industries simultaneously. In certain "bottleneck" areas it will come early. Additional expansion of demand causes wage rates and prices to rise in the bottleneck areas even under pure competition. As more and more bottlenecks develop, rises in wages and prices become more and more general until at length expansion becomes purely inflationary, or requires a proliferation of "wartime" economic controls, or is stopped by "bottleneck inflation" while significant unemployment persists. History abounds with instances of the first outcome. The wartime expansions of the United States or Great Britain or the Dominions illustrate the second, which the "Oxford Group" of Keynesians is frankly willing if not eager to accept. British experience in 1931–39 illustrates the third. There full employment was reached and maintained by and large, *except* in mining, textiles, machinery, and shipbuilding, in which unemployment had been concentrated: The expansion necessary to bring full employment to the vital "blighted areas" at existing wages and prices would have threatened runaway inflation elsewhere. Further peace-time progress was inhibited by monetary policy; it would probably have required direct assault on these rigid prices and wages or would have forced what we have since come to call a great "bulge" in the "price line."

Two other gaps in Keynesianism are to be found on the financial side, focusing on the basic question, "Where is the money coming from?" They are important if much money is in fact required, if private industry cannot be induced to expand investment voluntarily to secure full employment, and, more important, to maintain it once secured. That is to say, these gaps are particularly important if expansion must be long continued as in stagnation, less important if only occasional pump-priming injections are required.

3. Some Keynesians expect to raise all funds required by orthodox means. The money can be raised by taxation with a balanced budget, or by borrowing the idle funds of the public and the banks, the loans to be repaid later (at least as to interest) from future taxation when the income level is higher. The first alternative is the old, the second the new, orthodoxy of fiscal policy. Both orthodoxies are subject to the same basic objection. Heavy taxation, whether imposed in the present or anticipated for the future, inhibits the expansion of industry in partial or complete offset to the effects of government spending and

increased demand. Thereby it furthers the maintenance of bottlenecks and may encourage the price increases of underemployment inflation. This is especially true of the balanced-budget case, in which the net contribution of government to public spending is the smallest proportion of the gross, and the volume of taxation must therefore be the highest for a given expansion effect. It is least true, on the other hand, if money is raised by sale of perpetual annuities to the public on the model of the British Consolidated Funds (Consols), in which only interest must be repaid from taxation. (Ordinary bond issues may have their principal "repaid" when due out of the proceeds of new "refunding" issues and have the same effect—if the community anticipates repayment by refunding.) A secondary objection to fiscal orthodoxy old and new is purely practical: It has been difficult to raise sufficient funds for full-scale expansion by "sound" means during peacetime in the past and may remain so in the future.

4. Some Keynesians expect to raise part or all of the required funds by such unorthodox means as printing-press money or fiat—bank deposits or loans of bank funds which have been especially created by relaxing reserve requirements. These are the characteristic methods of war finance. They largely avoid offsetting contractions by industry, but at much greater risk of inflation. They need cause no greater immediate increase of circulation than do other methods, but they leave in temporary dormancy the great existing volume of idle funds and liquid claims which orthodox finance absorbs in taxes or freezes in bonds. Let substantial price increases occur, and these funds are left free to gush out. Their owners are free to take alarm, to lose confidence in the currency, to flee from money to durable goods or foreign exchange or real estate as hoarding mediums. Gentle inflationary pressure can be transformed into an economic Mississippi flood, which monetary policy can dam only at the risk of imposing or reimposing unemployment, if indeed it can act at all with sufficient rapidity and vigor.

Such a catastrophe may occur almost without warning and at any time. It need not wait for full employment. It does not normally occur as an immediate consequence of monetary expansion, and its delay has lulled more than one tightrope-walking finance minister and central banker into false security. To put the matter differently, the initial effects of expansion financed by unorthodox means are destabilizing when they are not inflationary. They may not cause prices to rise at once, but they render future increases more dangerous and less amenable to control. It is as an element of instability that the present United States money supply, for example ($175.0 billions in "outside" currency and bank deposits in December, 1945), must be looked on with concern, when compared with such previous figures as $60.9 billions at the outbreak of World War II, $55.2 billions at the 1929 peak, and $39.9 billions at the height of post–World War I inflation.

In any Keynesian expansion by unorthodox finance, it is particularly important that both underemployment and bottleneck inflation be avoided at all costs—including the cost of stopping expansion while bottlenecks remain relatively few in number, well before full employment is reached.

VI

Just as the weak points of Keynesianism were found capable of rein-

forcement by the devices of price flexibility, so we shall find the weak points of price-flexibility economics reinforceable by monetary or other supports from the Keynesian side. The systems interlock rather than collide.

1. A weakness of price flexibility on which Lord Keynes has remarked particularly is its silence on the important factor of anticipations. Once rigid wages and prices begin to fall, potential employers and buyers are expected to begin employing and buying at once, in volume sufficient to forestall any fall in total income and actually to produce a rise. This they are frequently able to do from their idle balances, but they can hardly be expected to do so if they anticipate further wage and price declines. If postponement of purchases becomes profitable, as it will when continued price cuts are anticipated, not only total expenditures but also quantities demanded may decrease instead of increasing as prices fall. Incomes may fall still farther and the economy bog down more deeply.

Needed as insurance against anticipations of the sort which counteract price flexibility is some basic stabilizing device to keep total incomes and purchases reasonably constant, to confine necessary price and wage adjustments within bounds, and to prevent their spreading from the rigid to the flexible sectors of the economy. Government spending, constancy of national income, underwriting of output, and pay-roll subsidies may come to mind—all remedies of a more or less Keynesian type.

2. Even without the disturbing influence of deflationary anticipations, the flexible-price solution is open to a parallel type of criticism. Depression unemployment is not spread evenly but is concentrated in producers' goods' industries: iron and steel, mining, machinery, construction. The demand for the products of these industries during slumps is not sensitive to changes in the prices of the products themselves but rather to national income and the amount and direction in which national income is changing. If demand for a product is practically independent of its price, cuts in that industry's wages or prices would decrease incomes gratuitously in the industry with negligible benefit to the economy as a whole. "Negligible benefit"? Perhaps no benefit at all, perhaps additional secondary injury if the industry and its employees comprise a significant percentage of the community's buying power.

A minority of economists, notably Professor Kenneth Boulding, argue even further along this line. They view labor and industrial monopoly and price rigidity as organized primarily in defense against the deflationary price cuts which depression would have brought to producers' goods industries under free competition. They defend labor and industrial monopoly from the public point of view as an insulator against uncontrolled deflation, while agreeing that maintenance of a high level of income is preferable and less liable to abuse. This defense of monopoly is interesting to us primarily because of an optimistic corollary which forms a Keynesian rebuttal to price-flexibility economics. The corollary: We may expect both labor and industry to cease restrictive and price-fixing practices almost voluntarily, with a minimum of coercion, once full employment is achieved under conditions which make its maintenance probable.

3. When consumers and enterprises have contracted money debts and other obligations at prosperity prices, even prosperity output and employment may not be profitable unless wages and prices

are restored nearly to the preceding prosperity level. The burden of fixed obligations acts as a brake on recovery and may even choke it off altogether until the economy goes through the wringers of wholesale default, bankruptcy, and renegotiation. (Some Continental price-flexibility writers talk of "healthy bankruptcy" at such times, with no success whatever in making it appetizing. The economy is not a child on whom castor oil can be forced under pressure.) No solution to the depression problem is feasible which postpones recovery until the economy has taken its castor oil or gone through its wringers. Such a solution is better ascetics than economics, if pleasanter alternatives are available. Here the less painful and difficult alternative solution for price distortion is the "reflation" of flexible prices at the same time that pressure is exerted on the rigid ones. This is what Keynesian expansion does in the presence of important bottlenecks; the evil of such bottlenecks is not unmitigated.

4. What finally of the effect of flexible prices upon the over-all average volume of private investment? We are back to the stagnation problem. Will flexible prices prevent stagnation or will they not? May they not even accelerate it? The price-flexibility economists' position leaves nothing to be desired for clarity, yet this very clarity seems at times to partake rather of the article of faith than the conclusion of reason.

The paradox of price flexibility lies in the possibility of its deteriorating the economic climate it is designed to improve. The price-flexibility program includes as a principal plank strict enforcement of antimonopoly legislation. Yet strict enforcement has been under steady attack as "persecution" and "undermining business confidence." Much of the investable funds of present-day capitalism are administered by individuals, banks, and trust and insurance companies from what may be called the "trustee" point of view. Their ultimate owners are of the second or later generations of prosperous or wealthy families; many are women and children devoid of business experience; nearly all are incapable of recouping much of their capital should it be lost. The objective of honest and faithful investment on their behalf is precisely the objective of the trustee: safety of principal comes first; income is a relatively minor consideration. Not for such investors or their trustees the assumption of the risks of competitive business. Not for such investors or their trustees the equities or securities of competitive concerns. Their confidence is too sensitive a plant. They prefer the "blue chips" and "gilt edges" of the great semimonopolies, or turn to government bonds, or leave their funds idle. How would they react if the blue of the chips and the gilt of the edges were forcibly to be tinted with competition "red in tooth and claw"? Would they retain their present interests in the same concerns or their successors? Would they turn to the financing of new, small, competitive business? Or would they clutch their precious confidences to their bosoms and flee to government bonds, bank vaults, and mattresses? All three to some extent, but in what proportions? We wish we knew. Certainly more investors like these might take their money on the great competitive leap in good times than in bad, but further than this we cannot say.

Another source of investable funds, now of major importance, would certainly decline relatively and perhaps absolutely under a flexible price regime. This source is the undivided profits of industry itself, together with liquid reserves

of various types. The viewpoint dominating the investment of these funds, too, is frequently that of the trustee, except when they are being plowed back into the investing firm itself or its affiliates. If, as we suspect, these funds are made up largely of monopoly profits, disguised and otherwise, price flexibility should tend to reduce their size. Their eventual draining-off either into consumption or into more active investment by smaller concerns might prove more beneficial to the economy in the long run than their continued disposal by the present methods; but in the short run these funds, too, might shift in part to bonds and cash, providing a definite depressant.

A third class of investible funds would certainly be enlarged by price flexibility. These are funds saved largely by small people, few of them "capitalists" in the usual sense, to found or expand small competitive businesses for themselves, their relatives, or their friends. Businesses such as these are now restrained by the various heavy hands mentioned in Section IV as inhibiting new investment. We cannot ascertain the volume of such potential investments in advance, still less the volume not currently being spent for consumption or for other types of investment.

The total effect of full price flexibility on private investment and the prospects of avoiding stagnation is therefore complex and not to be measured with ease, let alone assumed a priori. Doubts on this subject may explain the predilection of some price-flexibility writers for a piecemeal policy which strikes first at trade-union "syndicalism" and at rigid wages, while leaving the control of industrial monopoly and administered prices to an indefinite future. If full price flexibility is inaugurated during a slump, when competitive business is in bad shape, the dominant reaction might very well be loss of confidence and further recession. In better times, with competitive business doing well in free competition, gross investment is more likely to increase sufficiently to ward off stagnation in conformity with the price-flexibility writers' pious hopes.

VII

So we conclude a brief survey of the Keynesian thesis and the price-flexibility antithesis in liberal economics as regards the central problem of full employment. I have tried especially to indicate the possibility of synthesis, to show how neatly the two schools dovetail, to show how readily reducible are many of their differences to questions of stress and emphasis and timing. Neither school standing alone appears to offer an adequate solution to our economic muddle within the confines of the enterprise system. At the two in combination it is not easy to sneeze or to sneer.

This is not the place to work out the details of the suggested union or to thresh out the myriad of minor technical disputes within and between the schools which would inevitably arise before its accomplishment. It suffices to state that the union is practicable and that its desirability has been recognized by liberal economists in both the Keynesian and the price-flexibility camps.

But what of the financial difficulties of Keynesianism, which are left unsolved by recourse to flexible prices? They remain with us as evidences of Arcadia unachieved, perhaps as signposts for future progress. Keynesian financing if orthodox may be quantitatively insufficient or may defeat its own ends even with flexible prices. Keynesian financing if unorthodox may be tilted in its instability

into inflation by errors of judgment otherwise minor and pardonable, unless some Office of Price Administration is maintained indefinitely. The result devoutly to be wished is for the Keynesian —flexible-price combination to provide not only full employment but stable full employment, maintainable automatically under a price-flexibility regime with a balanced budget. Devoutly to be wished precisely because it minimizes the financial problem. But if savers insist even in good times on their right to hoard when deprived of the safety and confidence of restrictive monopolies to invest in, the stagnationists are probably right and the automatic maintenance of full employment is probably a dream. In such a case the peacetime choice before us will remain a hard one—inevitable unemployment with orthodox finance, threatening inflation or permanent controls with unorthodox finance. I would vote for the latter alternative, without enthusiasm.

Yet if liberal economists were to unite on any of a wide variety of eclectic combinations of Keynesian and price-flexibility doctrine, the combination could inaugurate a new golden age of economics, as neither Keynesianism alone nor price flexibility alone shows promise of doing. (Whether we call the combination Keynesian with price-flexibility safeguards or price flexibility with Keynesian safeguards is a matter of indifference; the former label would be more accurate if restrictionism could indeed be expected to decline of its own accord under full employment.) Financial uncertainties would keep the combination out of the class of immediate panaceas—but compare it with the pull-and-haul, horse-trading expediency of the current political "pressure economics." There is a rare opportunity here for economists, as Hitler's premature remilitarization of the Rhineland provided one for the Third French Republic. If the economists miss it, they have themselves and their disunity to blame—like the French in 1936. As for the results of missing it, the same analogy may hold. This is the way to economic Munich, economic Compiègne, and there is no one left to land on the Normandy beaches to rescue us.

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REALISM AND RELEVANCE IN THE THEORY OF DEMAND[1]

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I. INTRODUCTION

THE specific occasion for this comment is a single footnote—dealing with the behavior of indifference curves at and beyond points of satiation—which appeared in Professor Knight's interesting article under the same title. Taken by itself, however, this point, dealt with in Section VII below, might seem to be of little realism or relevance—in fact, it might appear to carry discussion beyond the satiation point. In that case, from the standpoint of readers or editors, it might require an increment of more important matters to place this issue of the *Journal* on the same indifference curve with an issue containing nothing on the subject. Fortunately or unfortunately, there do seem to be more important aspects of the behavior of demand, involving questions as to how they can best be handled, whether under the indifference-curve notation or in more traditional ways. Hence this note is even more concerned with some independent reflections on certain of the topics which Professor Knight has covered.

A starting-point for comments on the theoretical aspects of indifference curves may be furnished by a sentence in the excellent study of Wallis and Friedman (who are skeptical on the question of inductive measurement): "The great merit of the indifference function is its ability to encompass [the factors determining consumer choices] in their full generality and complexity and yet be free of irrelevant or erroneous assumptions about human psychology."[2] In what follows, I shall extend the area of the authors' skepticism by questioning both these alleged merits. The result points to the need of (1) including additional determinants and (2) abandoning the illusion that the factors encompassed determine choices with the precision which curved lines on paper suggest. Such precision does not correspond to reality. This conclusion may be resisted by some whose thinking requires a precisely determinate equilibrium or a maximization problem with a precise answer, whether these are found in nature or not. But fidelity to fact seems more important.

II. UTILITY AS A MEASURABLE QUANTITY

The indifference curve gets rid of the use of utility curves which—possibly without warrant—represent utility as a precisely measurable quantity, such that it could be said that the utility of one increment of a commodity is exactly two or three times the utility of another increment of the same or a different commodity. Probably few people nowadays use curves with any such meaning, so the issue is not at present a very live one, in spite of occasional attempts to "measure marginal utility." The elimination of utility reduces analysis of relationships of choice between commodities to a basis of barter, with all the inconveniences attached to such a basis as compared to a basis involving a common medium. The conception of utility introduced such a medium, corresponding to a deep-rooted and widespread intuition which may still deserve recognition. In any case the assumption of diminishing (though not measurable) incremental utility underlies the construction of indifference curves.[3]

From one standpoint, as suggested, the

[1] Cf. F. H. Knight's article in this *Journal*, LII (December, 1944), 289–319.

[2] "The Empirical Derivation of Indifference Functions," in Oscar Lange *et al.*, *Studies in Mathematical Economics and Econometrics* (Chicago, 1941), p. 176.

[3] Cf. Knight, *op. cit.*, pp. 294–97.

crux of the matter lies in the question of the precision which curves represent. In the case of utility, there is no warrant for this assumption of precision of measurement. But, as I will attempt to show, the apparent precision of indifference curves is equally unwarranted. On this point, then, judgment may be suspended for the moment.

III. PERSONAL DEMAND SCHEDULES

With regard to the concept of a schedule of different quantities of a commodity which a given person will buy at different prices, the indifference-curve notation gets rid of certain complications due to change in what is called the "marginal utility of money" as a person spends more on any one thing. It affords a basis for representing both the demand schedule in which the buyer does all his buying at one price and the kind of schedule which would appear if he were forced to pay, for his first unit, the top price which would limit his purchases to one, and so on for each successive unit.[4]

This difficulty is commonly circumvented in the older notation by assuming that the buyer does all his buying at one price or that he does not spend enough on this one commodity to alter materially the "marginal utility of money" to him. In the latter case, the two types of demand schedule would approximately coincide. Where an indifference curve represents a single commodity on one axis and "all other commodities" on the other, it would seem to be conceptually identical with a demand schedule of the first type—merely a different notation.[5]

The gain seems to amount to the removal of what is usually a minor element of inaccuracy in an analysis in which much larger elements of inaccuracy inescapably remain. It is, from this standpoint, a curious phenomenon that the removal of these difficulties or inaccuracies should apparently have sufficed to occasion a great revival of what is still essentially utility theorizing which still contains the major psychological elements which were successfully attacked as bad psychology something like thirty years ago, and which brought marginal-utility theory into general discredit in this country during the succeeding decades. On the whole, this revival is probably a desirable thing, not as furnishing a final answer to all difficulties, but as reopening a question which was too sweepingly closed a generation ago. Utility theory is not ready for complete discard, but the most important difficulties and defects remain, so far undisposed of by the newer approach.

IV. STABLE AND PRECISE SCALES OF PREFERENCE

The major psychological assumption, common to the utility approach, the individual demand-schedule approach, and the indifference-curve approach, is the assumption that each individual possesses a scale of preferences, exact and stable, and that his allocation of his resources—his budgeting of his income between different goods and services—is a consistent expression of this scale of preferences. This is what is meant by saying that his scale of wants may be good or bad, wise or foolish; but, such as it actually is, he chooses the things that rate highest in it. The same thing is implicit in the idea of a demand schedule or a set of demand schedules, uniquely determined by the qualities of the existing commodities and their prices. The consumer's scale of preferences must remain stable long enough for him to express it in a rounded series of purchases which can fairly be called a budget. During this period, no advertising appeals must affect him, no changes in tastes, no environmental stimuli must influence his purchases other than the goods and their prices—generally assumed to remain unchanged during the budgetary period.[6]

[4] *Ibid.*, p. 291.

[5] *Ibid.*, pp. 292–93.

[6] I have taken up these issues in "Economics and Modern Psychology," in this *Journal*, XXVI (1918), 1–30, 136–66, reprinted in *Preface to Social Economics* (New York, 1936), pp. 92–169, esp. pp. 109–15. Since writing the present note, I find that Benedetto Croce, in 1913, concentrated on this assumption of unreal stability as vitiating the Austrian economics, construed as a description of how choices are actually made (see his *Philosophy of the Practi-*

All three types of analyses—indifference curve, utility curve, and demand schedule—would seem to be equally irrelevant to, or inconsistent with, the obvious facts of advertising. They assume a static equilibrium within human nature which is obviously nonexistent. One strong way of putting this would take as a point of departure the widespread avoidance of "interpersonal comparisons," which are supposed to be scientifically impossible, whereas comparisons within the economy of a single person can, it is assumed, be made with complete precision.

But if the individual's scales of preference are not static, then a comparison of John Smith on Tuesday evening and on Wednesday noon is an "interpersonal comparison," to just the extent that John Smith is a different person when, let us say, he is taking a girl out and when he is looking over a book catalogue next day; or is a different person when he is looking over the bill of fare or the wine list from what he would have been if he had not been induced (either by inscrutable "chance" or by traceable economic stimuli) to enter this particular restaurant; or is a different person next day from what he would have been had he gone to a different restaurant the night before or if he had not received this particular book catalogue.

If we ask John Smith for his testimony about his preferences, it is always one out of many possible John Smiths who speaks; and if we take the evidence of his actual purchases (made at different times and under different circumstances), we are dealing with several different John Smiths out of many possible ones. The different John Smiths have much in common and have inside knowledge of one another. On this basis they can give testimony about one another, but only within limits. To assume that they are identical is not only without scientific warrant; it is contrary to the scientific evidence.[7]

This looks in the direction of studying the dynamic process of preference formation as a process.[8] To put it differently, the most nearly stable thing about John Smith is his susceptibility to a variety of stimuli, not limited to the physical characteristics of the available commodities and their prices. Basic theory should direct attention to active study of this wider range of stimuli, not away from it.

They include stimuli which increase or reduce one's resistance to other stimuli. Since much choosing is not between known alternatives, but is exploratory, it is not inconsistent to prefer A to B, B to C, and (presumably later) C to A. Not all such cases are covered by excluding "changes of tastes." The ultimate picture, even of economically "correct" choosing, is loaded with paradox: a fact which the economic mind seems determined to reject, by one expedient or another. So long as it does so, its picture of human nature will not be realistic. At the price of realism it buys the privilege of dealing with psychic quantities (or orders of greater or less) which can, on paper or in imagination, be precisely maximized. To a scientist, the price should be too high.

So far as concerns the consumer's reaction to particular market situations, the necessary adjustment may not be, after all, so disruptive. Instead of saying, "The consumer adjusts his consumption so that the marginal utilities secured by unit expenditure for different commodities will be equal," or "He adjusts his consumption of any pair of commodities so that the slope of the indifference curve representing them will be equal to the ratio of their prices," one may merely say, "The consumer, in so far as he acts deliberatively, buys anything which his present self is fairly sure his future self will not regret buying, and rejects anything which his present self is fairly sure his future self will regret buying. In between lie all the cases about which his present self cannot be sure of what his future self will think, and

cal [London, 1913], pp. 365–68, cited by Georgio Tagliacozzo, *Quarterly Journal of Economics*, May, 1945, pp. 322–23).

[7] In support of this position see Wallis and Friedman, *op. cit.*, pp. 179–81.

[8] "Economics and Modern Psychology," *op. cit.*, pp. 146–66 of reprint, or second of the original pair of articles.

within this fairly wide zone of uncertainty, he must necessarily take chances, and can never be sure whether or not his decision was economically 'correct.'"

On this basis it is still proper to talk of a tendency, acting to a limited extent in the direction of equalizing marginal utilities, or maximizing "welfare," as conceived in terms of indifference curves. The statement has merely lost the fictitious precision formerly attached to it.[9] The sharp lines in the diagrams become zones of substantial width, within which prices alone do not dictate a precise adjustment, and the outcome is influenced by other variables, which can be studied. The indifference-curve notation, in which it is the slope that is significant, might be harder to adjust to expressing this margin of indeterminateness. But the consumer still rejects major departures from the utilitarian standard. Therefore, as against a blank denial of all utilitarian tendencies, the utility theory (in whatever notation expressed) still contains an important element of validity.

In any realistic appraisal of reasons for allowing consumers' freedom of choice, the dogma of precise maximization of utilities seems clearly out of place. Even the more primitive doctrine, that individuals approximate this for themselves more closely than others could for them, is subject to heavy qualification in a scientific age. The value of freedom per se, and the difficulties of, and objections to, control in this area, probably deserve a larger place than minor supposed gains in the utilities derived from specific commodities.

V. SHORT-RUN AND LONG-RUN RESPONSES

Economists have come to recognize that adjustments to price changes take varying amounts of time. Some may take virtually full effect in an hour, some take years and involve the development of complementary goods and changes in consumers' habits. Suppose that we are considering, for example, a policy of low rates for electric power, coupled with promotion of the sale of domestic power-using appliances. The rate for power is only one of the collaborating variables, and it can hardly be expected to remain unchanged for as long as it takes American households to develop their full response to the combined policy. Such long-run responses are too complex to be well represented by simple curves of the familiar sort; and such curves are best thought of as expressing fairly short-run reactions.[10]

But this makes them inappropriate where a long-run perspective dominates. One important instance is the conventional "law of monopoly price," represented as the price that maximizes profit as determined by a cost schedule and a demand schedule. Probably few monopolies try to exact the utmost profit which a short-run demand schedule permits. They are governed by longer-run considerations, which urge them to a more moderate policy. Some of these might be fairly well represented by a simple demand curve of flatter slope than the short-run curve; but others could not be represented by a demand curve at all. Therefore, it seems that the conventional representation of the "law of monopoly price" is misleading.

Particularly misleading is the implication that price can be set only at a point at which the demand curve has an elasticity greater than unity, because otherwise the monopolist could increase his profit by raising his price. Pigou has even eliminated inelastic demand curves from a model economy in which monopoly was assumed, on the ground that they were inconsistent with stable equilibrium.[11] Actually, there is no

[9] This may explain why psychologists do not always see the error of marginal-utility psychology. They may not have in mind the economic phenomena which its oversimplification leaves out of account (cf. Thurstone's tests of indifference curves, cited by Wallis and Friedman, *op. cit.*, p. 177).

[10] Cf. Knight, *op. cit.*, p. 310. Knight apparently adopts the other alternative, regarding the demand curve as representing an ultimate, long-run adjustment, from which initial reactions depart. Any indefiniteness as to this time-factor is alone sufficient to invalidate the hypothetical precision of the curve.

[11] *Employment and Equilibrium* (London, 1941), p. 66, § 4, cf. p. 88, ll. 5–7.

reason why a monopoly price should not be set at a level at which the short-run demand curve is inelastic, if the monopolist is governed by long-run considerations. Even an inelastic long-run demand curve is consistent with the monopolist's self-interest, if that is affected by other things than demand curves.

This element of time is important, including the paths of adjustment in time which connect short-run and long-run demand functions. On the whole, the demand-curve notation seems better adapted to dealing with this factor than the indifference-curve notation.

VI. DEMAND FOR GROUPS OF COMMODITIES

The usual indifference curve represents on one axis the number, for example, of hats an individual possesses, and on the other the number, for example, of pairs of shoes. The quantitative implications of the device require that all hats be alike, likewise all pairs of shoes. But when one acquires more than one hat or more than one pair of shoes, one does not get them both alike. For the sake of realism, the notation needs to be adapted to deal with varying amounts spent on hats and shoes, regarded as classes of commodities, of which the individual will acquire a variety of different sorts, if he acquires more than one.

The Chamberlinian theory of competition between quality-differentiated products already uses the concept of a demand schedule for such a class of products as a whole, but provisionally circumvents the greatest difficulty involved by the device of assuming that all the different varieties are of equivalent value and sell for the same price.[12] Then the group-demand schedule assumes that all the prices change by the same amount and that consumers' relative preferences remain unchanged.

A more realistic treatment needs to stress the case of commodities graded from lower to higher, in quality and price. In such a case, a general cheapening of the entire quality range might result in fewer sales of the lowest grade goods and a shift in favor of higher grades. To offset this, it seems logical that economies which would make possible a reduction in price might be partly put into an increase in quality, especially in the lowest grades. In problems in which this kind of shift is of the essence, there might be some advantages in a demand schedule in which one axis measures a weighted-average price index for the group, allowing so far as practicable for changes in quality, and the other axis measures the total amount spent rather than the physical number of units bought, thus recording any shift of buying from grade to grade which might result from a changing price level.

VII. SATIATION POINTS AND AREAS BEYOND THEM

This brings us to the original occasion for this note, namely, a footnote in Knight's article, in which he has briefly expressed the theory that indifference curves, if completed, may, like the completed rainbow, join in a closed curve.[13] I had considered this possibility, but, like Knight, had not thought it of realistic importance. However, since Knight has published his curve, and since it differs in shape from the one which had seemed to me logically correct, I am moved to present my version, accepting for the purpose the "as if" conventions involved in drawing precise curves to represent an unprecise adjustment.

The key points in the construction are: the possibility of increasing the supply of either or both of the commodities past the satiation point and the question whether an excess supply of either or both is a positive nuisance. With this in mind, let us look at Figure 1, which elaborates the theory farther than Knight thought it worth while to do.

In the usual indifference-curve fashion, supplies of commodity X are measured on the horizontal axis and supplies of commodity Y on the vertical axis; and the solid

[12] *The Theory of Monopolistic Competition* (Cambridge, 1933), pp. 82–83. This assumption is later removed.

[13] *Op. cit.*, p. 293.

curve is a conventional indifference curve. Lines S'_xS_x and $S_yS'_y$ mark the satiation supplies of the two commodities, which are for the present assumed to be independent of one another. The area within the angle $S'_xCS'_y$ is the area of supersatiation for both

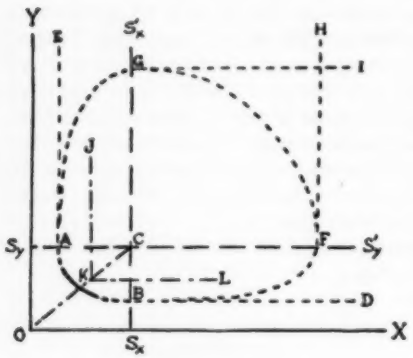

FIG. 1

commodities. At the satiation points the indifference curve becomes parallel to the appropriate axis, since a further increase in the redundant commodity has no power to offset a further reduction in the supply of the scarce commodity. Then if an excess supply is not a positive nuisance, the curve would be represented by *EABD*. But if a surplus of *X* is a nuisance, then it takes more *Y* to induce the acceptance of more *X*, and more *Y* can do this, but only up to the point at which *Y* is also redundant. Knight appears to disregard this limitation, which requires that the curve become parallel to the *Y*-axis at this point (*F*).

Then if a surplus of *X* is a nuisance, and a surplus of *Y* is not, the curve will be of the character of *EABFH*. In the converse case it will be *IGABD*. If both commodities, separately or together, have the nuisance quality when redundant, then, starting at *F*, to induce the acceptance of more *Y*, one must be freed from some of the surplus *X*, thus requiring the curve to bend toward the *Y*-axis, and ultimately to reach *G*, closing the circuit. (This sector of the curve has no counterpart in Knight's version.) Lower indifference curves would lie wholly outside this circuit; higher ones, wholly within it.

If the commodities are partly complementary, then the more of *Y* you have (short of satiation of *Y*), the more of *X* you can have without satiation. Therefore, on higher indifference curves, the satiation points would be farther from the origin than on lower curves. The reverse would be true if the commodities were partial substitutes. But, for any one curve, the effective satiation points would be fixed.

If the commodities are completely complementary at fixed ratios, then the indifference curves would be reduced, for example, to points on a straight line connecting *O* and *C*. Including redundancy sectors, the curves would be of the type *JKL*, the area OCS_x being an area where *X* is redundant relative to *Y*, while in area OCS_y, *Y* is redundant relative to *X*. Nuisance values might start to register within these areas. The rest of the diagram would seem to need no change.

If the commodities are perfect substitutes at fixed ratios, the line of satiation might be

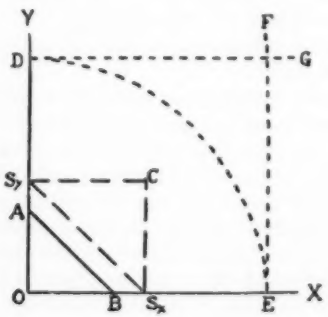

FIG. 2

represented by a straight line connecting S_y and S_x. Then the area S_yCS_x would be an area in which one or the other commodity is redundant, but there is no telling which. Indifference curves would be straight lines

parallel to S_yS_x and nearer the origin, such as AB in Figure 2. If surpluses are no nuisance, that is all. But if a surplus of X is a nuisance, then there is some point (E) to the right of S_x which is indifferent with B. If a surplus of Y is no nuisance, the complete curve consists of AB plus EF. In the converse case, it is AB plus DG. If both commodities have the nuisance quality, then it is AB plus DE (DE may take various shapes). Similar cases of curves interrupted and resumed can appear in the more general case illustrated in Figure 1.

As to applications, undesired surpluses do accumulate, even of commodities of which a moderate amount is of some use, and people pay to have them removed. But the cost of removal is normally so low that the outer reaches of the supersatiation curves would seem to lie beyond the range of probable experience.

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THE GRAPHIC DEPICTION OF ELASTICITY OF DEMAND

C. C. HOLT AND P. A. SAMUELSON

I. POINT ELASTICITY

THE present note describes a method for measuring and recognizing the elasticity of demand. The method is so simple that it must have been used by many teachers, but the writers have not been able to find any mention of it in the literature.

Marshall and other writers have shown how the elasticity of demand may be appraised graphically by comparing the lengths of certain line segments. This method suffers from one drawback. The human eye cannot easily determine when a given point exactly bisects a line, as it must in these methods whenever elastic and inelastic demands are to be identified. Moreover, none of these methods emphasizes sufficiently that elasticity and slope are not at all the same thing—except on double-log paper. The present method, based upon the comparison of parallel lines, at least partially remedies these deficiencies.

In Figure 1 we wish to measure the elasticity of demand at point A, or at least to recognize whether demand is elastic, inelastic, or of unitary elasticity. This is done in the following steps:

1. Draw the tangent to the demand curve at A.
2. Complete the total revenue rectangle at point A by drawing a broken horizontal price line from A to the price axis and by drawing in a broken vertical quantity line from A to the quantity axis.
3. Draw in the revenue rectangle diagonal traveling from northwest down to southeast.

Then the elasticity of demand is given by the ratio of the slope of the diagonal line to the slope of the tangent line. If the two lines are parallel, then the elasticity of demand is unitary. If the two lines tend to meet below and to the right, then demand is inelastic. If the two lines tend to meet above and to the left, then demand is elastic.[1]

This method emphasizes for the student and teacher that elasticity is not a slope but rather a comparison of slopes. Furthermore, the human eye can easily perceive the slightest deviation from a parallel condition. Finally, by the present method the student can easily recognize why every demand curve becomes infinitely elastic when so little is sold that the curve intersects the price axis.

II. ARC OR CHORD ELASTICITY

If we wish to measure the elasticity of demand not at a point but over a chord or an arc of finite length, a number of alternative definitions are possible. Despite the considerable number of papers written on this subject,[2] it is perhaps insufficiently realized that only one definition is satisfactory if the following simple (consistency) postulate is agreed upon: *that whenever two price-quantity situations lie along a curve of constant point*

[1] This may be simply proved from the definition of point elasticity as $-(dq/dp)\,(p/q)$ or as $-(p/q) \div (dp/dq)$. The numerator of the last expression is clearly nothing but the slope of the diagonal line. And the denominator is clearly the slope of the tangent line.

[2] A. Marshall, *Principles of Economics* (8th ed.), p. 102, n. 1, and "Mathematical Note III," p. 839; H. Dalton, *The Inequality of Income* (1920), p. 192; H. Schultz, *Statistical Laws of Demand and Supply with Special Reference to Sugar* (1928), p. 7; A. J. Nichol, "Measures of Average Elasticity of Demand," *Journal of Political Economy*, XXXIX (1931), 249, and "Further Note," *ibid.*, p. 658; A. P. Lerner, "The Diagrammatical Representation of the Elasticity of Demand," *Review of Economic Studies*, I (1933–34), 39, 229; R. G. D. Allen, "The Concept of Arc Elasticity of Demand," *Review of Economic Studies*, I (1933–34), 226.

elasticity, the arc elasticity of demand shall be equal to that constant value regardless of the size of the step. In that case, the only correct measure of arc elasticity of demand between any two points (q_1, p_1) and (q_2, p_2) is given by

$$-\frac{\Delta \log q}{\Delta \log p} = -\frac{\log q_2 - \log q_1}{\log p_2 - \log p_1}.$$

Graphically, this "true" elasticity is measured by the slope of the straight-line chord joining the two points plotted on double-log paper.

However, a number of teachers prefer not to use logarithms. In this case a number of makeshift definitions are possible which at least satisfy the above basic consistency postulate *along a line of constant total outlay* where point elasticity is always unitary.

Figure 2 shows two of the better known of these. If the elasticity of demand between A and B is to be measured, then the following steps are to be followed: (1) Instead of the instantaneous tangent to the curve, draw a straight-line chord connecting the two points in question. (2) Draw in the two total revenue rectangles corresponding to the two points in question. (3) Instead of drawing in diagonal lines within either of the two rectangles, rather draw a line connecting the upper left-hand corner of the *highest* price point with the lower right-hand corner of the *highest* quantity point. Or, as an alternative, connect the upper left-hand corner of the *lower* price situation with the lower right-hand corner of the *lower* quantity situation. (In terms of the diagram, connect either crosses or circles, but do not mix them up.) A third measure of arc elasticity will result from using the diagonal of a revenue rectangle drawn to a point midway between A and B.

Then just as point elasticity was given by a comparison of the rectangle's slope with the curve's slope, so arc elasticity is given by a comparison of either of the two indicated rectangle slopes with the slope along the chord AB.

If total outlay is the same in the two situations, both measures will indicate unitary elasticity of demand. If total outlay is lower in the lower price situation, both will indicate elasticity of demand less than unity. But the two numerical measures will not be equal. Indeed, the first or "upper" measure will be greater than the "true" elasticity of demand, and the other measure will be smaller. If total outlay is larger at the lower price situation, both measures will be greater than unity; but now the second measure will be smaller numerically than the "true" measure and the first measure will be larger than the "true."

We may summarize these relations in two sentences: The first or "upper" measure of elasticity always lies between unity and the "true" elasticity. The "true" measure always lies between unity and the second "lower" measure.[3]

[3] The first or "upper" measure may be written symbolically as

$$E_u = -(\Delta q/\Delta p)\,(p_u/q_u),$$

where p_u and q_u refer to the larger of the two prices and quantities. The definition of the second or "lower" measure can easily be written down by analogy. Allen has objected to these Lerner definitions on the ground that, if the points are not treated asymmetrically in a mathematical sense, nevertheless they are treated asymmetrically in at least a *notational* sense. This objection will not hold up, since mathematicians often write for the maximum of two quantities the symmetrical, but rather lengthy, expression,

$$p_u = \tfrac{1}{2}(p_1 + p_2 + |p_2 - p_1|).$$

By changing the second plus sign to a minus sign, the smaller of two quantities can also be written in a symmetrical form.

If the "true" elasticity of demand is n, and if λ represents the fractional price decrease between the two situations, then it is not hard to show that

$$E_u = -(1 - \lambda^n) \div (1 - \lambda)$$

and

$$E_L = -\left(1 - \frac{1}{\lambda^n}\right) \div \left(1 - \frac{1}{\lambda}\right).$$

Also $E_L = E_u\lambda^{1-n}$. From these relations, it follows that as $\lambda \to 1$, $E_u = n = E_L$. Also, $E_L < n < E_u < 1$ whenever $n < 1$; and $1 < E_u < n < E_L$ whenever $n > 1$. The arithmetic mean of E_L and E_u approaches n extremely rapidly as $\lambda \to 1$, the difference being an infinitesimal of higher order. The same can be said for the third "midpoint" measure mentioned earlier.

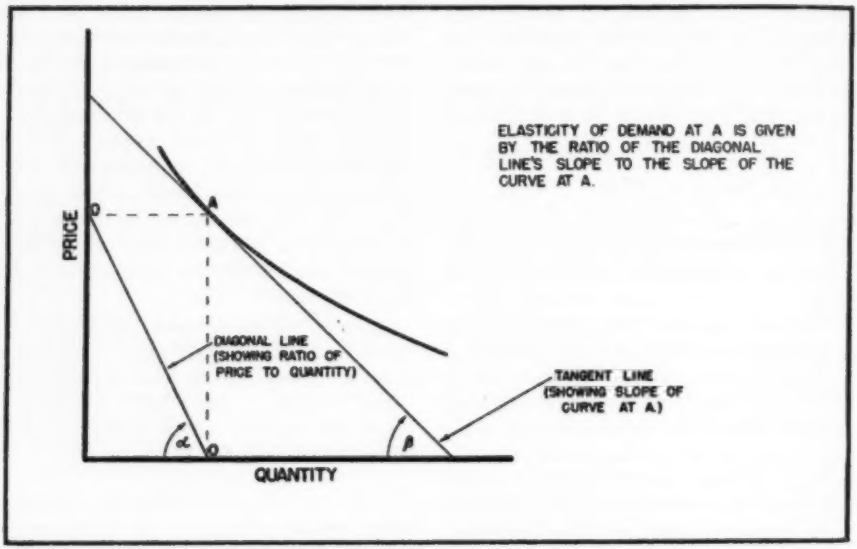
ELASTICITY OF DEMAND AT A IS GIVEN BY THE RATIO OF THE DIAGONAL LINE'S SLOPE TO THE SLOPE OF THE CURVE AT A.
PRICE
O
A
DIAGONAL LINE (SHOWING RATIO OF PRICE TO QUANTITY)
TANGENT LINE (SHOWING SLOPE OF CURVE AT A.)
α
O
β
QUANTITY

FIG. 1.—Graphic depiction of demand elasticity at a point

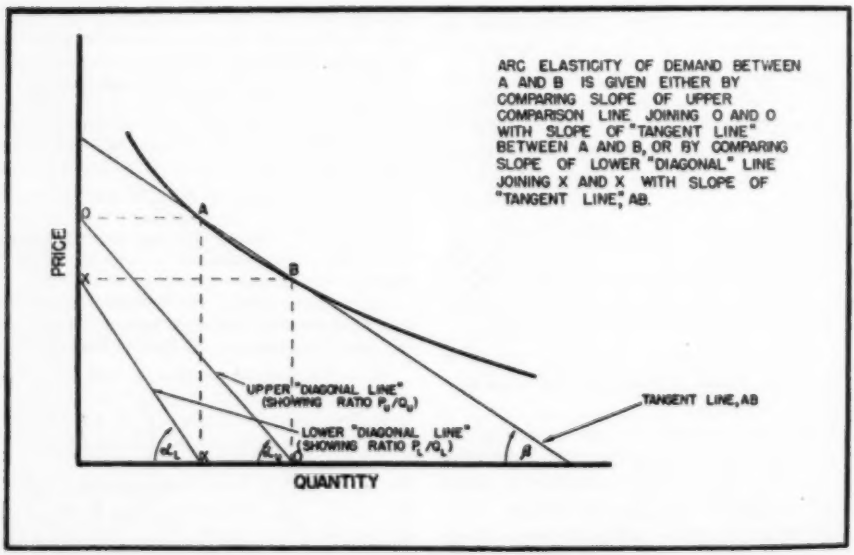
ARC ELASTICITY OF DEMAND BETWEEN A AND B IS GIVEN EITHER BY COMPARING SLOPE OF UPPER COMPARISON LINE JOINING O AND O WITH SLOPE OF "TANGENT LINE" BETWEEN A AND B, OR BY COMPARING SLOPE OF LOWER "DIAGONAL" LINE JOINING X AND X WITH SLOPE OF "TANGENT LINE," AB.
PRICE
O
A
B
X
UPPER "DIAGONAL LINE" (SHOWING RATIO P_u/Q_u)
LOWER "DIAGONAL LINE" (SHOWING RATIO P_L/Q_L)
TANGENT LINE, AB
α_L
α
β_L
O
β
QUANTITY

FIG. 2.—Graphic depiction of arc elasticity of demand

The difference between these two measures of arc elasticity and their respective divergences from the "true" or consistent logarithmic measure obviously increases (1) as the elasticity of demand in the two situations differs more and more from unity and (2) as the percentage size of the price change differs more and more from zero. However, both measures are "locally" consistent in the sense that each approaches asymptotically the correct point elasticity as the size of the price change becomes indefinitely small. However, this can be said of many measures which are not even consistent indicators of unitary elasticity; as, for example, the usual textbook definition in which one point or the other is taken as a base.

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THE NEW ETHIOPIAN MONETARY SYSTEM

MAX J. WASSERMAN

THE end of World War II left the monetary systems of the belligerent and occupied countries in a chaotic condition which will necessitate programs of reconstruction and reform if currency difficulties are not to continue to handicap foreign trade. The outstanding difficulties are the inflation which prevails in many of these countries and the fact that the official rates of exchange frequently overvalue the national currency.

The first nation to undertake a far-reaching program of postwar currency reform is Ethiopia. Her monetary system, ever since the Italian invasion of 1935, has been disorganized. Two steps have recently been taken to improve it: the first was the organization of the State Bank of Ethiopia in August, 1942, and the second was the monetary reform, "Currency and Legal Tender Proclamation," No. 76, of 1945, and Legal Notice No. 75, of 1945, published in the Ethiopian official gazette, *Negarit Gazeta* (Addis Ababa), Vol. IV, No. 9 (May 29, 1945). The new monetary reform embodies some principles which are modern and not as yet widely employed and which have been designed to fit Ethiopia's currency to the requirements of the International Monetary Fund.

Prior to the Italian conquest in 1935, Ethiopia's monetary system was based on the Maria Theresa thaler, or dollar, a silver coin weighing 433 grains and containing 360 grains of fine silver, which had been in circulation since 1780 and which bore the effigy of the Austrian empress. It was originally coined by the Austrian mint, although in later years some were struck in London for the account of foreign business firms. Other Maria Theresa dollars were coined by commercial houses and were accepted by the Ethiopians as long as they embodied the legal silver content.

The external and internal value of these dollars fluctuated with that of silver. After the expulsion of the Italians in 1940, Ethiopia concluded a monetary agreement with Britain which provided that Ethiopia would make no changes in her monetary system without British consent. This agreement expired in 1944 and was not renewed. Under this arrangement the value of the Maria Theresa dollar was fixed at two shillings or ten Maria Theresa dollars to the pound sterling. It is estimated that about sixty to seventy million Maria Theresa dollars were in circulation at the time of the Italian conquest in 1935.

In addition to these dollars, the following subsidiary coins circulated:

2 allas (silver)	= 1 Maria Theresa dollar
4 rub (silver)	= 1 Maria Theresa dollar
16 mehalik (silver)	= 1 Maria Theresa dollar
2 besa (copper)	= 1 mehalik

Maria Theresa notes were issued by a private bank—the Bank of Ethiopia—but were not generally accepted outside the larger cities. In 1935 the subsidiary coinage was reformed and the decimal system was introduced. Nickel pieces of fifty, twenty-five, and ten cents were struck, together with bronze coins of five and one cent.

After the conquest in 1935, the Italians attempted to introduce their paper lire. The Ethiopians rejected this currency, and the Italians retaliated by declaring the paper lire the only legal tender. This measure succeeded only in driving the Maria Theresa dollars out of circulation, and producers and distributors were reluctant to exchange goods against the Italian paper money.

The Italians then minted a new coin of low silver content for use in Ethiopia. This coin was not readily accepted by the Ethiopians and was soon replaced by another

coin of higher silver content, which was also refused by the Ethiopians, who continued to prefer the Maria Theresa dollar. Later, the Italian government minted Maria Theresa dollars.

When the British expelled the Italians from Ethiopia in 1940, they introduced the paper East African shilling, pegged at the rate of twenty shillings to the pound and issued by the East African Currency Board. Both paper shillings and Maria Theresa dollars were declared legal tender, interchangeable at the rate of two shillings to one Maria Theresa dollar. Thus ten Maria Theresa dollars were officially equivalent to one pound sterling. While the shillings circulated freely in the cities, they proved unacceptable to the farmers in the rural districts, who were willing to sell their produce only against the "hard-money" Maria Theresa dollars.

The rate of ten Maria Theresa dollars to the pound sterling, when established in 1940, accurately reflected the value of the silver content of the coin in world bullion markets at that time. Unfortunately, this official rate was not altered as the value of silver rose. In 1944 the black or unofficial market rate for the Maria Theresa dollar, expressing the higher value of silver, stood at six and a half Maria Theresa dollars to the pound. The official rate of ten Maria Theresa dollars to the pound, therefore, undervalued the purchasing power of this coin.

Under ordinary circumstances it would be expected that this undervaluation would stimulate exports from Ethiopia and restrict imports into the country. The undervalued Maria Theresa dollars, however, were driven into hoards or into the Middle East silver market, where they commanded a higher price, and very few were available for exchange against the pound at either the official or the black-market rate. Since the Ethiopian peasant refused to accept the paper East African shillings then current in Ethiopian city trade, and would part with his produce only against Maria Theresa dollars, very few Ethiopian goods found their way to the export markets. The black-market price of Maria Theresa dollars was too high, in view of import ceiling prices prevailing in England and the United States, to permit the purchase of goods in Ethiopia with Maria Theresa dollars acquired in the black market. No Maria Theresa dollars were available at the official rate. As a result, Ethiopia's export trade, and finally her import trade, suffered severely during the war years.

Alongside of these difficulties, Ethiopia has suffered, ever since the Italian invasion, from an insufficiency of fractional currency. Banking facilities were inadequate for the credit needs of agriculture, trade, and industry. Obviously, the country was badly in need of a complete monetary and credit reorganization.

The first step in this direction was taken in August, 1942, with the creation of the State Bank of Ethiopia. This bank succeeded the Bank of Ethiopia, which had absorbed the Bank of Abyssinia, founded in 1905 under an Egyptian charter with a capital of 500,000 Egyptian pounds. With the Italian conquest in 1935, the Bank of Abyssinia was abolished and supplanted by the Banco d'Italia. The State Bank of Ethiopia started operations with a capital of one million Maria Theresa dollars, equivalent to $400,000 at the official rate of exchange, which was entirely provided by the government. The first governor of the State Bank of Ethiopia was Mr. C. S. Collier, who was succeeded by Mr. George Blowers, an American.

The present currency reorganization law, largely the work of Mr. Deressa, minister of finance, and Mr. Blowers, continues Ethiopia's monetary reform. The new monetary unit, the Ethiopian dollar—abbreviated Eth. $—of 5.52 grains of fine gold, is a theoretical standard of value. The par of exchange of this coin with the United States dollar is 1 Eth. $ = U.S. $0.4025. The monetary proclamations issued thus far make no provision for the issue of these gold dollars.

The law does provide, however, for the issue of both currency notes and other coins. The currency notes are in denominations of

one, five, ten, twenty, fifty, one hundred, and five hundred Ethiopian dollars. The silver coins authorized by law are a fifty-cent piece and an Ethiopian silver dollar. The policy of the government and of the State Bank, however, contemplates for the present the issue only of the fifty-cent piece. Copper coins in denominations of one, five, ten, and twenty-five cents have been issued.

The silver for the coins—5,325,000 troy ounces—struck by the United States mint into thirty million fifty-cent pieces of 108.5 grains each, 80 per cent fine, was furnished to Ethiopia by the United States under a Lend-Lease arrangement. The government of Ethiopia is to return the silver to the United States, ounce for ounce, within a period of from five to seven years.

The copper coins consist of a mixture of copper and zinc, in the proportion of about nineteen to one. The metal, minting, transportation, and other expenses were furnished Ethiopia by the United States under Lend-Lease. The United States Mint coined for Ethiopia ten million twenty-five cent pieces, twenty-five million ten-cent pieces, twenty-six million five-cent pieces, and fifteen million one-cent pieces. The paper currency was engraved and printed by an American bank-note firm and was paid for by Ethiopia.

The currency fund held in reserve against the bank notes, but not against the silver or subsidiary currency, is to consist, according to Proclamation 76, of "gold, silver and foreign currency bank balances or prime securities readily convertible into foreign currencies to a minimum extent of seventy-five per cent of said fund and Imperial Treasury obligations to a maximum extent of twenty-five per cent of the said fund." At present the reserve of the bank consists entirely of foreign funds.

This fund is to be segregated from all other assets of the government and of the bank and is to be employed exclusively for the redemption of the note issue. The department of the bank charged with the issue of these notes is known as the Issue Department—a bank organization plan doubtless borrowed from the Bank of England. Since Ethiopia is a gold-producing country, she should have little difficulty in providing an adequate gold reserve for the currency. The exact output of her gold mines is not known, but recent estimates place it at about 80,000 ounces a year.

The currency notes and silver coins are unlimited legal tender, while the copper coins are legal tender up to ten Ethiopian dollars.

The value of the Ethiopian money, for purposes of issue and redemption, is established at the rate of one Ethiopian dollar for 40.25 United States cents and two shillings sterling, or one-tenth of a pound. The rates of exchange of the new dollar against other foreign currencies are to be determined by the State Bank, which is also empowered to charge commissions on exchange transactions.

The "Currency and Legal Tender Proclamation," No. 76, provides certain measures to cover the orderly transition from the Maria Theresa dollars and East African shillings to the new currency. For a period of six months after the date of the proclamation the East African shillings continue to be legal tender. The Maria Theresa dollar, however, is now no longer legal tender and is to be accepted only as bullion at rates to be established by the bank. For the present the bank will pay out three Ethiopian fifty-cent pieces for one Maria Theresa dollar, but since the two Ethiopian coins together have only half the silver content of a Maria Theresa dollar, it cannot be anticipated that many will be exchanged. Maria Theresa dollars will either be retained in hoards, be converted into ornaments, or be exported to the Middle East markets. The use of the Maria Theresa dollar is now forbidden in all types of banking and business transactions.

The transition measures also stipulate that all laws, contracts, and instruments, after July 23, 1945, are deemed to have been drawn in terms of Ethiopian dollars. In the case of laws and instruments drawn in terms

of East African shillings, the conversion rate is two shillings equal one Ethiopian dollar. For laws stipulating Maria Theresa dollars, the rate of conversion is one Ethiopian dollar equals one Maria Theresa dollar. The bank is to fix the rate of conversion for all legal instruments drawn in Maria Theresa dollars at the bullion value of this coin. After July 23, 1945, all payments, regardless of the coin stipulated, must be made in Ethiopian dollars.

From the reserve and redemption point of view, Ethiopia is not on a gold standard but a type of foreign-currency exchange standard, a modern monetary device not as yet generally employed but well adapted to the International Monetary Fund and to the trading needs of the country. The new currency, although based on a theoretical gold dollar, which is the standard of value, is not necessarily redeemable in gold. The issue and redemption provisions of the law envisage redemption in dollars, pounds, and other foreign currencies. Article 4, Schedule A, of Proclamation 76 provides:

> The issue and redemption of currency in accordance with Article 5 of this Proclamation shall be effected at the rate of one Ethiopian dollar for 40.25 United States cents and of one Ethiopian dollar for two shillings sterling (one-tenth pound sterling) and against such other currencies and at such rates as shall be determined by the Bank, provided that the Bank may charge a commission which it shall fix from time to time and shall post on the bulletin boards in its Head Office and various agencies. Provided further that no person shall be entitled to claim the issue or redemption of currency in accordance with this Clause for any sum less than 50,000 Ethiopian dollars.

The law does not specify the amount of money to be issued, stipulating only in Section 5 of Proclamation 76 that "the State Bank of Ethiopia shall issue currency at declared currency centers in Ethiopia against prepayment of foreign currencies as designated and at rates prescribed by the Minister of Finance and published in the *Negarit Gazeta*. It shall also, on demand, receive such currency tendered at its currency centers in Ethiopia and issue in exchange telegraphic or mail transfers payable in currencies designated and at rates prescribed by the Minister of Finance and published in the *Negarit Gazeta*."

Under this type of standard, the actual amount of currency in circulation depends on Ethiopia's balance of payments. If Ethiopia exports more than she imports, there will be a surplus of foreign currency in the hands of Ethiopians. This foreign currency can then be exchanged at the State Bank of Ethiopia for Ethiopian dollars. If the balance of payments runs against Ethiopia, the situation is reversed, with Ethiopians exchanging their dollars at the bank for foreign currency needed to pay for imports. Thus a favorable balance of payments may be followed by an increase in the amount of money in circulation and an unfavorable balance by a decrease.

Increases in the money in circulation tend to bring about a rising price level, while decreases are frequently followed by falling prices. Thus the favorable balance of payments, by ultimately bringing about rising prices, supplies its own correctives, for the higher prices will mitigate against continued exports and favor an increase in imports. Conversely, an unfavorable balance of payments, which is followed by a decrease in the amount of money in circulation and a fall in prices, should encourage exports and discourage imports, thereby reversing the unfavorable balance-of-trade situation.

Quantitative data are not yet available to permit one to assess the results of Ethiopia's monetary reform. Recent reports indicate, however, that the new official rate of exchange—1 Ethiopian dollar equals 40.25 United States cents—overvalues the new currency in terms of dollars and renders it difficult for Ethiopia to export her customary commodities (skins and hides, coffee, beeswax) to the United States. Ethiopia is, however, now exporting to other middle eastern countries in which higher price levels prevail.

The new currency, both silver and paper, is being well received by the inhabitants, urban and rural. It was feared that the people of the rural areas, who have been used to the Maria Theresa dollar since 1780, would refuse to accept the new silver coins, which are lighter in weight and silver content, and that the new paper notes would be refused by the farmers, who declined the Italian paper money and the East African paper shillings. The new copper fractional currency is supplying a long-felt need for fractional currency. When the International Monetary Fund opens its doors, Ethiopia will be able to fulfil the conditions of her membership without substantial changes in her monetary system.

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HEIMANN'S HISTORY OF DOCTRINE AND CURRENT ISSUES[1]

FRANK H. KNIGHT

PROFESSOR HEIMANN'S statement of objective is very appealing: "to show the inward logic .... of the development of modern economic thinking and thereby to place the study of economic theory in its proper setting." And, in its main outline and fundamental features, the execution also strikes this reviewer as sound and fitting. However, these statements leave room for much disagreement, not merely on details, but also on matters of great importance, either from a doctrinal or from a pedagogical standpoint. In fact, there is so much that I find very good and also so much that seems quite bad that it is difficult to review the book at all satisfactorily in brief compass.

The first point in question is the combination of tasks suggested by the title and subtitle. The author's plan indicates that he intends the subtitle to be taken seriously, though perhaps the word "introduction" need not imply that it should be the very first reading assigned to a student in the field. But should any roughly chronological survey of a subject like economics, in which there have been many revolutionary advances, come before, rather than after, the acquisition of a fair grasp of the content and problems? The latter is established practice in teaching the natural sciences. Furthermore, by combining the two objectives, Heimann produces a "history of economic doctrines" that will not be satisfactory either to the scholar or to the teacher, even allowing for its brevity—about 75,000 words of text. There is practically no quotation and not a page reference in the whole work. The author interpretively summarizes the position of each writer, striving to bring out and appraise that writer's contribution to "modern economic thinking." The footnotes do little but list main works, books, or articles, with their dates and the life-dates of the authors. Thus, it is impossible to check specific statements for criticism or verification.

For the purpose of an "Introduction," however, there is undoubtedly too much detail and effort at precision. Too many authors are considered individually, especially in the generation now active. Here, moreover, selection and treatment often seem invidious or controversial, and historical perspective can hardly be claimed. One hesitates even to illustrate the first-named tendency. But in a work which so largely revolves around notions associated with the name of Keynes, it is surely anomalous to find no mention of H. G. Moulton, J. R. Hicks, and C. O. Hardy. Nor is H. J. Davenport referred to in this connection, though he anticipated one main pillar of Keynesian doctrine by more than twenty years. (Davenport is mentioned in a comparatively long discussion of Wieser, merely for the phrase "opportunity cost," though he has other claims to recognition that are more important—in my opinion, of course. Incidentally, Heimann abruptly holds Wieser "right" against classical cost theory and, while in general I agree, I do not think "disutility cost" can be dismissed so summarily.) Heimann's style, while in harmony with his matter, is rather argumentative and not easy reading. For even the younger graduate student, I doubt if his work is as good as that of Alexander Gray (1931), in spite of lacunae in the latter and less attempt at analytic penetration. Heimann's book would seem useful rather as a summary and a stimulating review of economic theory in terms of its

[1] Eduard Heimann, *History of Economic Doctrines: An Introduction to Economic Theory*. New York: Oxford University Press, 1945. Pp. ix+263. $3.50.

development—and naturally, from the author's particular point of view.

This matter of the point of view, or of what is considered sound doctrine, sets the main problem in the writing of this type of history. It could hardly be done with complete impartiality, and our author's stated objective, admirable as it is, commits him in a peculiar degree to interpretation in the light of his own views on controversial questions of today. It might have been well for him to be more frank and explicit about this; he might have tied in the development of economics with a statement of his ethical conception of European history, particularly in the period of modern liberalism. The method and the time of writing involve giving a central position to the problem of depression, hence monetary theory and disequilibrium. The author's well-known position as a socialist (not an orthodox Marxian) heightens this interest, as does his general "bias" (good or bad) against the "classical-neoclassical" doctrine, both in its interpretation and for its "laisser-faire" opposition to governmental action. The informed, critical reader will discern the author's "tendency" virtually at the outset, in his treatment of mercantilism (chap. ii) and even more clearly in his discussion of the relationship between Quesnay and Smith (chap. iii) and between Malthus and Ricardo (chap. iv).

Chapter iii, on "The Founding of Economics," ends with a section on "Circular-Flow vs. Price Theory," which I find obscure. What is it that flows—money, or some essence of value or productive capacity? There is an implicit connection between (*a*) the *Tableau économique*, (*b*) Böhm-Bawerk's production-period theory of capital, and (*c*) the theory of the business cycle; but I do not get the nature of the connection. This is probably because, in my opinion, the second relation in particular is bound up with fallacies which utterly confuse both the branches of theory in question. Perhaps I may be allowed a few words on these "fallacies," beginning with the theory of capital—which, incidentally, seems to me to be of the essence of the inner logic of modern economic thinking and a touchstone of doctrinal truth and error.

Heimann calls Böhm-Bawerk's theory of interest and capital "the outstanding single contribution of neo-classicism" and finds its "chief merit" in its viewing capital as labor and land employed for deferred ends. This gives the theory a psychological side, in "the fact that men . . . . prefer present goods to future goods," and a productivity side in the famous greater yield of more roundabout processes or a longer period of production. Both sides seem to me palpably false, but I shall here comment only on the second, stated by Heimann in language more plausible than that of Böhm-Bawerk himself. The whole idea of a "circular flow" of value between consumption and production is a fallacy, which arises out of two obvious confusions. The first is taking agriculture as the type of all production—and taking a superficial view of that, since the capital represented by prepared field and growing crop is ignored, and its recognition makes the investment substantially continuous. The second confusion relates to the time required to produce or reproduce concrete productive agents and, in particular, to make a net addition to any stock of capital. It should never have needed pointing out (in a community where elementary principles of accounting and management are understood) that no agent is productive until after provision for its maintenance (in which replacements are an incidental technicality); consequently, consumption and production are simultaneous in a stationary economy, while in reality there is no definite relation, in time or otherwise, between investment and disinvestment. And it is similarly obvious that capital goods are not produced by "other factors" but by the cooperation of all kinds of agents in use in the society at the time, however these may be classified, and that in fact all kinds have in varying degree the essential features by which capital goods are usually distinguished. All have been produced at a cost in the sacrifice of possible consumption—pro-

duction including exploration, development, and risk-taking; all require maintenance and replacement; and all can be increased in supply, if not by physical reduplication, then by creating an "equivalent" in terms of the final service rendered. Thus for theoretical analysis the essential fact is not a "cycle" of production, consumption, and reproduction but simply that a stock of economic means perpetuates itself and yields an excess product which can be consumed or used to any extent to increase the stock itself. The rate of yield, in any case or any market as a whole, is most simply found as the rate of growth when the entire yield is reinvested. Finally, new investment (increasing a stock of capital) will lengthen some technical processes and shorten others; increase the life of some agents and decrease that of others (by any method of dating beginning and end, which must be largely arbitrary); and the average "durability" of capital goods need not increase with the growth of investment as a whole—though it probably does so as an empirical fact.

It is natural that a writer who falls into the fallacy of the conventional theory of capital should also fall into the still simpler one with respect to land rent. So we find our author saying (p. 175) that "land is not produced and capital is." In fact, it is mere presumption to assert that what is crudely classed as "land," including its "natural" with its "artificial" qualities, has on the whole or on the average, for any fair sample, cost either more or less than its market value on any date. If it has, the difference is a simple example of profit or loss due to imperfect knowledge and foresight. Finally, it should be clear to anyone with a fair understanding of economic reality that the main phenomena of investment and its yield, and of profit and loss in that connection, are completely independent of the use of money and of the existence of markets or any division of labor. They would all occur in a Crusoe economy, with essentially the same meaning as in a society of any size and organized in any way whatever. In this reviewer's opinion, the most important use of the study of the history of economic theories is to bring out the human capacity (including that of the "best minds") for believing in palpable absurdities. Among such beliefs, none are more mysterious than the notions that interest and rent come from different classes of sources and that capital is produced by labor.

We turn next to the "grand finale," the system of economic fluctuations; and here the story is particularly embarrassing to this reviewer. I am unable to understand or account for many statements made by the writers treated or of their historian in his brief report. To begin with, it seems to me self-evident (a) that any process of adjustment that is subject to a significant "lag," as all economic responses clearly are, will exhibit oscillations and that (*b*) nothing more, except the detailed facts of various economic situations, is necessary to account for the myriad more or less periodic variations, differing in amplitude and wavelength, that occur in all prices and other economic magnitudes—including investment, production as a whole, and the general price level. (In large-scale market phenomena the lag itself is largely due to imperfect knowledge, and individual ignorance as to what others are doing and planning is an important factor in the irregularity of change and adjustment.) The essential fact everywhere is that every purchase and sale is more or less a "speculation" in future values and tends to affect more or less the relative values of money, services, and goods of varying degrees of durability or service life. Among the popular locutions I find it hard to account for is the statement that the classical and neoclassical economists "assumed" full employment; what they assumed was correct pricing, which has to be the basis of a theory of the functioning of a market, and from this full employment does (or would) follow inescapably. (But correct pricing requires perfect foresight, which, of course, is an unrealistic assumption.)

Other mysteries center in the current use of terms like "saving," "investment," and

"hoarding." It is certainly axiomatic that saving and investment must be equal in any system—how can that question be argued? There is no more question that hoarding and dishoarding affect production only because they affect relative prices and that this is because of imperfect market adjustments, chiefly differential lags. It would not seem to be difficult to distinguish between (*a*) the intention to save—which is always an intention to invest in something that will yield a return, either in direct service, in money payments, or in increase in value—and (*b*) the intention to hold wealth in one particular form rather than another—money, monetary obligations, or goods, more or less permanent and either already in existence and owned or acquired by purchase, or to be created by new investment. It is manifest that (in the absence of an offsetting opposite change) a decision to hoard—meaning to increase money holdings substantially beyond routine needs—at a particular point must tend to cause a fall, first in some particular price and later in general prices. The main significance of this comes from two facts; the first is that prices of goods are more responsive than prices of services (business revenues versus costs) and those of more durable goods more responsive than of less durable. (There are several reasons, the "acceleration" principle being one.) Second, men of good sense will invest more if they expect rising prices, and conversely; anyone will hold money if he expects it to rise in value faster than accumulation at a safe-investment rate. All this would be true just the same if lending at interest were effectively prohibited (all financing by equities). Furthermore, the behavior of the various market rates of interest has little to do immediately with the volume of investment, under any disturbed conditions, in comparison with speculative prospects or attitudes.

In view of these "self-evident truths," I am at a loss to understand the explanation of cycles and depressions in such terms as "over-saving" or "under-consumption" (Heimann seems inclined now to one version and now to the other). The essential phenomenon is clearly hoarding (and dishoarding); there is no necessary connection, and little direct correspondence, between decisions affecting hoarding and those affecting saving, while the indirect effect is in reverse—(positive) hoarding results in reduced saving and investment or actual disinvestment—and also in more or less reduced consumption. In view of the prevailing tenor of current discussion, it seems important to insist that there is little relation between the hoarding that is causally important and any change in intention to save; that the main fact is the timing of investment, which depends on speculation in the relative future value of money and goods. Consequently, it is surely absurd to say that "the rising propensity to save is the gravest and ever-present danger to the stability of the system" (p. 234, Heimann reporting agreement between Hahn and Keynes and apparently agreeing himself). Further, it surely is worth noting that "hoarding"—storing-up of wealth by individuals in the form of "money"—would be practically a pure net benefit to society, a donation by the saver, if it occurred steadily, or if the monetary system were managed so as to prevent disturbance of relative prices. Such "saving" represents an excess of production over consumption, except for the social cost of supplying the "money," which ought to be negligible.

To conclude this over-long review of a small book, I must add a few words on the relation between economic theory and social policy. The latter is surely involved, along with pure science, in the "inner logic of modern economic thinking" and is especially implied in our author's general approach and interests—one of the merits of his book. However, he does not come squarely to grips with this phase of the problem. We are given a short chapter of 13 pages on "Critics and Reformers" (chap. v, on Sismondi, List, and the early socialists) followed by a long one (36 pages) on "Eco-

nomics as Historical Dialectic of Disharmony" (chiefly on Marx and the Marxist School). A section (5 pages) on Franz Oppenheimer as representing "Liberal Socialism" strikes me with surprise, especially in a book of this compass. One of Heimann's main concerns is to relieve socialism of the incubus of the labor theory of value (he calls it "labor-value theory"). The concluding section of the chapter is entitled, "Is the Theory of Exploitation Refuted?" It is brief, and the implied but not clearly stated negative answer to the question gives a weak impression. Further, no effort is made to define exploitation or to state a norm that would give definite meaning to the issue.

For reasons we have partly suggested, writing the history of economic doctrine is a task of peculiar difficulty. Economics is a field in which issues seem to be restated or changed in form rather than ever settled. But the same consideration makes study of the history essential to any understanding of contemporary discussion and problems. Professor Heimann has given us a conscientious and professionally competent performance and has undoubtedly made a contribution to progress in this field of endeavor. Most of the criticisms given above, as will be seen, relate more to the subject matter treated than to the author's treatment of it. I should like to close by repeating the suggestion that one of our needs is more integration of economic thought into general cultural and political history. Hasbach, Bonar, Pribram, and others have approached this task from the side of "background," but it is still relatively uncultivated soil. Marx pointed the obvious moral to Ricardo's theories—as, for that matter, did Henry George. So much the worse for the theories, to be sure; but it is an important if unpleasant reflection that so much of the advance in economic thought has been due to re-examination of foolish doctrine occasioned by dislike of its political implications.

UNIVERSITY OF CHICAGO

MR. GOTTLIEB ON OPTIMUM POPULATION: AN OBJECTION

P. K. WHELPTON

IN HIS recent article Mr. Manuel Gottlieb has, to my great surprise, listed me as one of several demographers disparaging "both the concept of an 'optimum' population and the real problems which that concept was designed to elucidate."[1] In particular I am accused of challenging "the formal validity of the concept" of optimum population.

Gottlieb appears to have classified me on the basis of five words which he quotes from the first sentence of a chapter, "Optimum Size of Population—National and Local," which appears in my *Needed Population Research*. If Gottlieb had read further in the chapter, he would have realized that, far from disparaging either the theory or the attempts to determine optimum size of population, I was pointing out the need for further research in these and related fields.

He could have classified me much more accurately on the basis of the following quotation (referring to the United States): ". . . . it is highly desirable that further attempts be made to ascertain what is the national optimum, or at least to analyze the effect of increases or decreases of various numbers on the well-being of the population."[2]

In the past I have been accused of believing too strongly in the validity of the theory and in the probability that the population of the United States is well above the economic optimum. This is the first time I have been criticized for the opposite attitude.

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A REPLY

MANUEL GOTTLIEB

I have delayed answering Mr. Whelpton's objection during a fruitless search in Berlin libraries for a copy of his book, *Needed Population Research*. It has been almost a year since I read this book and the relevant chapter. My recollection of its detail is not too clear.

However, I did *not* list Whelpton among those demographers who are "disparaging both the concept of an 'optimum' population and the real problems which that concept was designed to elucidate." My opening sentence was intended to serve as a broad generalization to be amplified and documented by the detailed discussion of the body of the paper. And Whelpton's name was not mentioned within that detailed discussion.

The only reference within the paper to Whelpton was a quotation included in a collection of utterances and expressions which, in varying degrees, had challenged the validity of the concept of an economic population optimum. The purpose of those quotations was vividly to indicate, by their composite effect, the existence of a dangerous climate of opinion which had become crystallized in "slogans," "utterances," and even "names." The very circumstance that the quotations were so short—as in Whelpton's case, five words—would, I thought, lead the reader to understand that the expressions quoted were not to serve as a basis for doctrinal classification and that consequently detailed explanations as to the precise theoretical position of each quoted author were unnecessary at that place in the text.

Of course, use of this literary method does incur the danger of indiscriminate "mixing." For that reason, an effort was made to indicate that the "challenging" quotations—and the textual passages which they reflected—were of uneven quality, or, to quote the text, ranged from "comparatively modest" to "strident." And the citation from Whelpton's book was listed first in the assortment of quotations specifically characterized as "comparatively modest." If Whelpton complains of being placed in bad company, he at least might acknowledge the effort made to separate the petty offenders from the major delinquents.

Whelpton's complaint would be most directly sustained if he asserted that the five-word quo-

[1] "The Theory of Optimum Population for a Closed Economy," *Journal of Political Economy*, LIII (December, 1945), 289.

[2] P. K. Whelpton, *Needed Population Research* (Lancaster, Pa., 1938), p. 164.

tation was wrenched out of context and misrepresented the thought of the particular passage involved. He appears to do so by arguing that he was "classified" on the basis of "five words" which appear in the first sentence of the optimum chapter of his book. I confess that I have forgotten the details of that passage, and I would feel contrite if its tenor were misrepresented. From the circumstance that Whelpton seeks assistance by citing a much later passage (which I am chided for not having read), I gather that there were more than five guilty words involved.

Having said so much by way of justification, I do wish to acknowledge that, of all the quoted authors (with the possible exception of Mombert), Whelpton might have grounds for complaint. As I remember, I thought well of the chapter, and, looking through my paper, I am a little surprised that I did not cite Whelpton on those positions which we held in common. I remember particularly a short but well-written passage concerning the importance of natural resources. However, I also remember feeling that Whelpton's reasoning was weak on some of the crucial issues involved in the economic characteristics of the optimum (in which I was most interested). And I suppose that, for that reason, I thought the offending passage, as represented by the five-word quotation, was suitable for inclusion in my collection of "challenging" remarks. I would have to reread the chapter—and at least look through some of Whelpton's other publications (which, as I remember, contain little material on this question)—to decide that inclusion was a mistake.

At any rate, I heartily agree that Whelpton should not be "classified" as an opponent or disparager of optimum theory.

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BOOK REVIEWS

Social Darwinism in American Thought, 1860–1915. By RICHARD HOFSTADTER. Philadelphia: University of Pennsylvania Press, 1944. Pp. viii+191. $2.50.

Despite the fact that the first American edition of Darwin's *Origin of Species* appeared on the eve of the Civil War, its thesis rapidly won acceptance in literate circles. Until the 1890's Darwinism, though in itself "a neutral instrument, capable of supporting opposite ideologies," was interpreted in terms of rugged individualism. About this time Darwinian collectivism began to supersede Darwinian individualism, only to lose hold after 1914. Social economists and historians will find Hofstadter's account of Darwinism's changing role useful and illuminating.

When the works of Darwin and Spencer began to be published in America in the 1860's, individualism was already a national tradition, competition was looked upon as salutary, and the climate of opinion (especially that regnant in the dominant groups) was congenial to a tooth-and-claw version of natural selection. Spencer's philosophy, therefore, was acclaimed as the gospel of gospels; and William Graham Sumner's synthesis of natural selection, classical economics, and the Protestant ethic was favorably received.

The Spencer-Sumner version of social Darwinism did not long go unchallenged, however. Social theorists found it full of flaws, while various groups in post-1870 America discovered its economic system to be less than perfect. Lester Ward pointed to the wastefulness of social Darwinism and competition and to the dynamic and cultural character of social phenomena and processes. For the Spencerian philosophy of inevitability Peirce, William James, and, subsequently, John Dewey substituted the pragmatic philosophy of possibility. Still others (including Fiske) indorsed solidarism, with its emphasis upon the group rather than upon the individual as the unit of survival; and even the eugenists accepted the principle of state action. Reformers played up the theme of the necessity for state intervention in economic affairs. Economists, especially those under the influence of the historical school, found the individualistic philosophy of their intellectual forebears wanting.

Toward the close of the century social Darwinism obtained a new but temporary lease on life when it became associated with an explosive amalgam of nationalism and belief in Anglo-Saxon racial superiority and manifest destiny. It soon lost hold, however. The spuriousness of its anthropological tenets was noted. The economic, social, and racial problems which expansionism entailed were indicated. Most important, America lacked a military, war-glorifying cult and, after 1914, came to identify imperialism and expansionism with hated Prussianism.

Space permits few comments. One cannot accept without considerable qualification the finding that "changes in the structure of social ideas wait on general changes in economic and political life." The task of the historian of ideas is rendered difficult by the fact that until recently economists have usually failed to distinguish between economic competition in general and the problem of resource allocation under an assumed condition of perfect competition. Economic competition in the latter sense has been objected to by various groups, not because the rule it embodies is defective but because each group is seeking a rule that discriminates in its favor. The history of the attack upon competition is less the history of the development of a collectivist way of thinking than of the search by interest groups for discriminatory rules, powers, and situations.

J. J. SPENGLER

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Methodology of the Social Sciences. By FELIX KAUFMANN. New York: Oxford University Press, 1944. Pp. viii+272. $3.50.

Professor Kaufmann published a book under a similar title, *Methodenlehre der Sozialwissenschaften*, in Vienna in 1936. According to the author, the present book differs from the earlier largely because of the impression which Dewey's *Logic* made upon him (p. vii). He does not accept Dewey's analysis as wholly valid, especially with reference to meaning, but he credits the reading of the *Logic* with stimulating him to

reconsider the whole formulation of methodology. The present book is organized around the thesis that methodology is "an autonomous rational discipline" which must be clearly distinguished from deductive logic.

The analysis of methodology is intended to clarify the meaning of science by an examination of the methods and fundamental concepts of science. The argument runs through the major issues of general methodology preliminary to, and as a foundation for, the analysis of problems of methodology in the social sciences. Accordingly, the first half of the book is devoted to general problems of methodology; in fact, to many of the fundamental issues in philosophy, including knowledge and reality, language and meaning, truth and probability, and value judgments. The second half of the book is addressed to "Methodological Issues in Social Science" with chapters, among others, on natural science and social science, value problems in the social sciences, and principles of economic theory.

The sweep and general conception of the book are impressive; and the footnotes (in the Appendix) present an extensive commentary upon philosophical and methodological discussions, especially in Europe, which are pertinent to the author's argument. But the level of generality attempted, the review of many of the classical disputes, and especially the dialectical method of presentation make the book difficult reading, at least for those of us who are not professional philosophers. The statement is detached, formalistic, and deductive. One sees the issues through the soft lights of the library. Students of the social sciences who turn to this book in hope of finding concrete suggestions on research procedures will be disappointed; nowhere is the statement enlivened by the insights of a research worker fresh from a successful investigation. Instead, the social scientist is encouraged in effect to integrate a viewpoint by thinking through the theory of propositions and reflecting upon the questions regarding presupposed rules of empirical procedures.

The formal structure of the argument in the book, as we understand it, turns on the distinction between synthetic and analytic propositions. Synthetic propositions are presented as empirical, dealing with matters of fact; in the most rigorous formulations of causal relations, a synthetic proposition allows no exceptions; a contradictory instance negates the "law." Scientific thinking is defined as "a process of classifying and reclassifying propositions by placing them into either of two disjunctive classes in accordance with presupposed rules" (p. 40). "We shall call the totality of synthetic propositions accepted at a particular time the scientific situation at this time" (p. 52).

Propositions about meaning are called analytic. Thus value judgments, and indeed all judgments regarding the correctness of behavior, are considered analytic propositions.

The "correctness" of a decision involving any proposition is held to turn on systems of procedural rules presupposed as given for the particular decision. There may be some subtleties in the argument that escaped my attention, but I am unable to find solid ground for conclusion in this critical area of the author's thought. The procedural rules for any decision are taken as given, but the rules themselves are derived and grounded somehow. Without denying that hypotheses for investigation and the generalizations therefrom in the form of propositions need to be integrated with propositions already accepted in any field of social thought (and, of course, there are certain formal rules for the guidance of thought in such integration), the attempt of Kaufmann to make this integration the final test of scientific validity relies too much on the coherence theory of truth. The case is even weaker in the proposed method of grounding analytic propositions (of valuation) by reference to axiological rules of procedure; the illustrations from Kelsen's analysis of the pure theory of law do not give one much comfort, for the reference is ultimately authoritarian (even though constitutional [p. 210]). No, the ultimate difficulties of the social sciences are not verbal but practical.

The implicit ideal or purpose of scientific effort is taken, time and again, to be prediction. Predictions in the social sciences are recognized as less precise than in the physical sciences. But the issues of "control" as a scientific purpose, especially in the social sciences, are virtually ignored. In the discussion of the ideal of precision in social laws, the illustrations given of "rather precise warranted predictions" are those of train schedules or carrying the mail. Certainly these are better illustrations of controlled social events than of mere prediction.

Since Kaufmann has commented on so many of the critical issues in social thought, the book is filled with statements that evoke a critical reaction from the reader. How one reacts cannot be divorced from what somehow makes sense to him on these same issues. The author sets him-

self the task of dealing with issues rather than the implications of certain assumed philosophical positions; and issues he discusses. Also the discussion is temperate and the concluding section of the book a moving and modest statement of one who has obviously reflected a long time on the great need for integration of social thought and for understanding and communication between social scientists.

Though not a professional philosopher but as one who has made limited but serious efforts to understand some of the philosophical issues implicit in economic thought, I do not find the book illuminating or suggestive on the issues that have troubled me. The conception of the social is limited almost to the conception of a mere attitude toward other persons; implicitly, at least, the social is viewed as an epiphenomenal occurrence upon an underlying physical real. These two together make it impossible, it seems to me, to gain an adequate reference to social organization, which in economic analysis and policy is today so terribly urgent.

KENNETH H. PARSONS
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A General Rural Survey, the Commission's First Report to the Honorable J. B. Chifley, M.P., Minister for Post-war Reconstruction; Settlement and Employment of Returned Men on the Land, Second Report; Land Utilization and Farm Settlement, Third Report; Financial and Economic Reconstruction of Farms, Fourth Report. By RURAL RECONSTRUCTION COMMISSION (AUSTRALIA). Canberra, 1944. Pp. 58; 55; 139; and 79.

These four reports present a comprehensive survey of the Australian rural economy growing out of the work of a commission which held 202 sessions at which evidence was taken from witnesses. The reports provide as background a brief review of the agricultural history of Australia, the factors which have influenced land utilization and cost of production, the conditions affecting the social well-being of rural people, the merits of various relief schemes, and recommendations for economic reconstruction of agriculture. There is also a descriptive treatment of the place of rural industries, in terms of employment and value of products, in the Australian economy.

The settlement of soldiers after the war of 1914–18 is reviewed and provides the foundation for the discussion of plans and aids for returning veterans who may choose to enter agriculture. This report is timely, it has the perspective that comes from learning from past lessons, and it does not give way to the general optimism that wartime demand for food has engendered with regard to postwar expectations for an enlarged and profitable agriculture.

The four reports constitute a valuable case study for those concerned with problems confronting agriculture in Western countries whose market consists of a population of the incipient decline type. One sees in miniature, in the developments in Australia, the same forces shaping the supply and demand for farm products that are operative on a larger scale in the agriculture of a country like the United States. Although the writers of the reports have learned much from the interwar period, they have underestimated the strength and the persistency of the economic forces which require further substantial transfer of resources, mainly labor resources, out of agriculture into other occupations.

T. W. SCHULTZ
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The Economics of Peace. By KENNETH E. BOULDING. New York: Prentice-Hall, Inc., 1945. Pp. ix+278. $2.75.

As propaganda for a particular set of economic policies, Boulding's book is a successful and, at times, brilliant performance. The case for a compensating fiscal policy to offset secular stagnation is presented lucidly, eloquently, and cleverly. To it is wedded a plea for middle-of-the-road policies in preserving and improving private enterprise. The entire volume is pervaded with obvious sincerity and humanity of purpose. It is one of the most effective tracts in behalf of what we call "Keynesian" economics.

But I propose to review Boulding's book in its humbler (and yet, I suspect, more important) capacity as an elementary textbook.[1] At

[1] The book contains five more or less independent essays: the problems of reconstruction (four chapters); economic progress and justice (two chapters); unemployment (three chapters); international trade (one chapter); and a critique of isms (three chapters). I shall omit reference to the section on reconstruction, which is brief and bold, and to that on international trade, which is a faithful servant to the theory of employment. An excellent appendix on politics and morals will also be passed over.

the outset it should be emphasized that there is no objection, at least on my part, to recommendations of policy in a textbook. On the contrary, students can learn to apply economic analysis to policy only with practice, and it seems strange that these applications are usually made only orally by the instructor, who can be singularly irresponsible under classroom conditions. But the purpose of a textbook (or of any book on a rational level) is not to expound personal views; it is to state the arguments which support the views.

Boulding has not performed satisfactorily this task of rational persuasion. The stagnation thesis is fundamental to his proposals for solving the unemployment problem and, indeed, casts its shadow (or light) over the entire book. How is this thesis argued? First, by a one-paragraph enumeration of declining population growth, vanishing frontiers, and nonemergence of great new industries (pp. 127–28). Second, by an a priori argument (p. 129) in itself weak and open also to the obvious question of how a formal demonstration can be given for the necessity of a particular historical event. A detailed and meaningful argument for the mature economy thesis would be stimulating to students; his treatment is not in any real sense educational.

Or again, consider the diatribe against the gold standard which faithfully caricatures the chapter on right-wing illusions.

> They [most people] do not realize that the gold standard simply means a law, passed by the national legislature, which fixes a price at which the treasury or the central bank *must* buy and sell gold. They think that in some mysterious way the gold standard insures "stability": stability of *what* they never bother to inquire! The gold standard does, of course, insure the stability of the price of gold. It does, when operated by two countries, insure the stability of their foreign exchange rates. But it practically insures the instability of everything that really matters—income, prices, and employment! Under the "stability" and "soundness" of the gold standard we enjoyed the halving of our national money income (from 1929 to 1933), the maintenance of 10–12 million unemployed, the virtual collapse of our banking system, and even great fluctuations in our foreign exchange rates after 1931 [p. 208].

Boulding would not use such debating tactics against Gregory or Hardy; why should they be used on students?

Let us turn from such controversial matters to the subject of economic progress, where economists have little knowledge and their opinions are relatively undogmatic. At an early stage we are told to compare the heterogeneous products which succeed one another on the basis of consumer preferences (p. 77); how does this work with women's hats? Progress is to be measured directly by output per man-hour, a suggestion which would probably have been qualified if Boulding had paused to explain either the technical construction of indexes of output and employment or the effects of economic policies such as tariff protection. And what are the principles of economic progress (the chapter's title)? There is much deliberation over private property, lesser mention of thrift and competition, and many obiter dicta such as: "Historically, however, mankind has been much more prone to err on the conservative than on the progressive side, and progress has been checked much more by the excesses of conservatives than by the excesses of radicals" (p. 88). There are also specific theorems, such as "the higher the standard of life, at least up to a certain point, the lower the fertility" (p. 99). But where is the evidence? The student is well-supplied with provocative opinions, but he has a right to demand more.

It would be unfair to close on this continuously adverse theme. There are many excellent discussions strewn throughout the book, and the chapter on left-wing illusions is admirable. Indeed, the reviewer is in the uncomfortable position of feeling that his reactions would have been more favorable if the book had been written by an economist of lesser competence and talents.

GEORGE J. STIGLER

University of Minnesota

The Pattern of Corporate Financial Structure: A Cross-Section View of Manufacturing, Mining, Trade and Construction, 1937. By WALTER H. CHUDSON. New York: National Bureau of Economic Research, 1945. Pp. xiv+148. $2.00.

Since 1940 the National Bureau of Economic Research has been conducting a series of studies under the general title "Business Financing Project." Dr. Chudson's work is the seventh publication in this series and is to be succeeded by two additional studies now in preparation.

Chudson has used as his principal sources of material "a comprehensive tabulation of cor-

porate balance-sheet items primarily for the years 1931 and 1937" (p. 1), which were derived from the "Source Book of Statistics of Income" (unpublished) and the *Statistics of Income*, both compiled by the Bureau of Internal Revenue; and the *Statistics of American Listed Corporations*, published by the Securities and Exchange Commission. The figures for 1931 are used only for test purposes, the analysis being based upon the figures for the year 1937 only.

The investigation uses a ratio methodology to determine whether there is any significant financial pattern in the manufacturing, trade, mining, and construction industries. Six major balance-sheet items, such as inventory, current assets, and debt, are related to both total assets and sales for each of the major industries as a measuring device. Each ratio is then compared to the same ratios for the other major industries and subgroups, in order to determine what financial pattern, if any, can be associated with particular types of industries, size or profitability. The results of these comparisons lead the author to conclude that "the wide range of variation among financial ratios indicates clearly that there is no normal or typical pattern of financial structure for the economy as a whole" (p. 6).

Users of the ratio methodology are frequently careless concerning relative and absolute changes. Since these terms are not interchangeable, authors should be careful regarding shifts in their point of view. The present author frequently fails to make this distinction. Furthermore, ratios are susceptible to various methods of calculation. Current assets divided by total assets results in one ratio, while the reverse operation presents another ratio; but the interpretation differs. If a relative increasing volume of current assets is exhibited, and is construed as favorable, then in the first case above an increasing ratio would be favorable, while in the second case a decreasing ratio would be favorable. The reader here is sometimes left to figure out what the author means.

From time to time certain a priori statements are made upon which it would be difficult to obtain general agreement. For instance, "since a corporation has no inherent [*sic*] need for any long-term indebtedness" (p. 105), any analysis revealing such debt would be informative. It is true that up to the early twenties competitive industry did not, as a rule, rely upon the long-term market. But beginning at that time, and lasting up to the present time, with an abatement during the early years of the past decade it has depended heavily upon the long-term debt market. Whether this is "inherent" or not might be subject to debate.

It is difficult to see why "a distinction should be drawn . . . . between debt and 'other long-term debt,' which is in the form of mortgages for the most part" (pp. 105–6). The only difference between the two is the mechanism for emission and the probable multiplicity of holders. Certainly the distinction is not that between "funded" or "unfunded" debt, since both types provide long-term funds of the same kind. It would have been better to consider these sources of funds jointly. Nor is it particularly astounding to assert that, in the changes exhibited by the current ratio in both income and deficit corporations, "the ratio is the joint result of the behavior of its numerator and denominator" (pp. 71–73).

Throughout the work Chudson is careful to assert his findings in terms of a static analysis. What might be true for the 1937 array of ratios might be quite different from what existed the year before or from what may be exhibited in the succeeding year. Furthermore, he realizes that there are certain defects in his material, such as unconsolidated balance sheets and the changing value of the dollar. The frank recognition of these limitations enhances the scientific status of the study, and all credit men as well as devotees of "rule-of-thumb" methods of judgment in corporate financial matters, of whom there are far too many, would profit by a careful and searching analysis of the contents of this book.

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Postwar Fiscal Requirements: Federal, State, and Local. By Lewis H. Kimmel, Adah L. Lee, and Mildred Maroney. Washington: Brookings Institution, 1945. Pp. viii+166. $2.00.

This kind of book does not readily lend itself to a review. The authors "attempt to estimate the probable level of governmental expenditures (federal, state, and local) for the first reasonably settled postwar year—which is assumed to be the fiscal year ending in 1949" (p. iii). To review their estimates requires any reviewer to make other estimates; to criticize

the assumptions of the authors leads to the substitution of new, or at least modified, assumptions; to comment on details degenerates soon into quibbles. Only a note is appropriate, lest the volume be overlooked. This is no reflection on the quantity or quality of the research that went into the volume or on the standards of scholarship of the authors. The volume is a workman-like job. It is the most elaborate estimate of postwar expenditures yet published and will be useful to those interested in estimated levels of future expenditures, and to those interested in particular functions of government. Time will tell where its estimates of maximum, minimum, or probable expenditures will stand.

The book contains an introduction to provide a setting with words of caution, a summary to present conclusions and tables showing estimates by types of government and functions, and supporting chapters on national defense, veterans' benefits, regulation and protection, promotion of economic development, promotion of social welfare, debt service, general government, miscellaneous expenditures, governmental business enterprise, and social security finances. The final chapter compares estimated expenditures by governmental levels with estimates of national income. Throughout the book estimates for 1949 are compared with actual expenditures in fiscal 1940. There is an appendix on "Sources and Methods" and a two-page Index.

SIMEON E. LELAND

University of Chicago

Andrea Barbarigo: Merchant of Venice, 1418–1449. By FREDERIC C. LANE. ("Johns Hopkins University Studies in Historical and Political Science," Ser. LXII, No. 1.) Baltimore: Johns Hopkins Press, 1944. Pp. 224. $2.25.

Andrea Barbarigo was a successful, but not outstanding, Venetian businessman, who scarcely left a mark on the political and cultural life of his city. This, however, is not the least reason why his biography is so interesting to us. While we have a number of essays on great artists, generals, political leaders, and tycoons of the Italian Renaissance, we know but little about the man in the street. To be sure, Barbarigo's noble birth and his success in trade placed him well above the average in the business metropolis that was Venice in the fifteenth century. Still, he can be regarded as a typical merchant in many respects, and, much more than any generalization and abstraction, his biography may help us to understand the economic and social life of his time. We must be grateful to Professor Lane for devoting the most thorough investigation to a comparatively uneventful story and for telling that story with literary skill and grace such as is very seldom found in books of this kind. One can wish only that there were more biographies such as this.

Barbarigo was a scion of an old noble family, but the son of a man who had "suffered ruin and disgrace" apparently through dereliction of duty as commander of a convoy of merchant ships. His career began at nineteen, in 1418, when he went to sea with the small sum of 200 ducats, given him by his mother; a little later he also served as a commercial attorney, in conformity with the standard training of young noblemen in Venice. He had some schooling. Thanks to his commercial ability, and to his promptness in making the most of family and class connections, Barbarigo was able to leave on his death (1449) an estate of 10,000–15,000 ducats. This was not much, compared with the taxable estates (140,000–240,000 ducats each) of the seven richest Venetian citizens in 1379. But it was more than the majority of Venetian noblemen owned in that year—more than eight hundred of some twelve hundred noblemen possessed between 1,200 and 12,000 ducats, while others, having still less, were not subject to taxation.[1]

A considerable proportion of the wealth of Barbarigo was acquired not in business but by heritage or as a dowry (his wife brought him 4,000 ducats). His trade ventures and his handling of bills of exchange made up the rest of his gains. In one of the most valuable chapters in the book, Lane follows step by step Barbarigo's mercantile operations (not all of them equally successful) from 1430 to 1433. He goes on to investigate the later history of the Barbarigo family, which shows the usual trend of withdrawing gradually from trade to seek "safer" forms of investment in real estate, government bonds, and the like. This may have been more typical of Renaissance Italy than of other places and times, but it occurs even in America today and is not necessarily connected, in the reviewer's opinion, with a desire to climb the social ladder. Birth, not profession, determined

[1] G. Luzzatto, *Storia economica, dell'eta moderna e contemporanea* (Padova, 1938), pp. 79–80.

social ranks, and the Barbarigos needed to own no land to be respectable in a gentlemen-traders' city.

The book includes excursuses, both in the text and in the appendix, on transportation, mail, partnerships and other business contracts, accounting methods, and source material. All of them are useful, and the description of Barbarigo's commercial books is particularly valuable. One friendly criticism must be made, although it does not affect the fine quality of this outstanding book. No texts of the commercial contracts entered upon by Barbarigo or his contemporaries are given, and of Barbarigo's letters only short extracts are included—and these mostly in English translation. We feel that no historian's account, intelligent and accurate though it may be, can entirely replace the untranslated words of the man whose life and ambitions are described. This is particularly true in regard to such a difficult and controversial subject as partnerships and ventures, which have no exact equivalent in modern business practice.

ROBERT S. LOPEZ

Brooklyn College

The House of Hancock: Business in Boston, 1724–1775. By W. T. BAXTER. ("Harvard Studies in Business History," Vol. X.) Cambridge: Harvard University Press, 1945. Pp. xxvii+321. $3.50.

This study is largely based on the account-books and the letter-books of Thomas and John Hancock and of Daniel Henchman, Thomas' father-in-law, most of which are at Harvard. The available journals cover the period from 1718 to 1782, except for about a dozen years. No Hancock ledgers survive, but those of Henchman cover most of the years between 1712 and 1762. The Hancock business letter-books used cover all but four of the years between 1735 and 1786 and supply much of the most interesting material.

In 1724, after serving a seven-year apprenticeship, Thomas Hancock set up his own business as a bookseller and stationer in Boston, importing most of his stock. Being of an adventurous type and finding this field very limited, he soon took up general exporting and importing, with such success that within a dozen years he was recognized as one of the leading merchants of the town. It was the war years of 1739–48 and 1756–61, however, that provided him with his greatest opportunities, and he was quick to take advantage of them. A long series of government contracts for war supplies enabled him to do business on an unprecedented scale and apparently most of the contracts were very profitable. Thus, when Thomas died in 1764 he left one of the largest estates in the colonies, estimated at £100,000, Massachusetts legal money.

Nearly three-quarters of this fortune was bequeathed to his nephew John who, after a period of training including a year in England, had been made a partner in the business in 1763. As the author puts it: "The business had taken Thomas forty years to construct. In the next five, John brought it to a standstill; in five more, it had crumbled away" (p. 293). Hard times and John's political activities contributed to this outcome, but the author concludes that the chief cause was John's lack of the ability of his uncle to make plans which fitted in with the conditions of the times.

It cannot be said that the results of this study will require any appreciable modification of prevalent ideas as to the general character, course, and organization of New England's foreign trade at this period; on the whole, these ideas gain new support. The chief value of the Hancock records is in providing details and making much more vivid the conditions and problems which arose in this trade. Among these problems the most pressing and persistent seems to have been the familiar one of finding means for meeting payments on English debts created by importations. Apparently the means used by the Hancocks were not unusual: they included the export of rum and provisions to the Newfoundland fisheries, of fish to the Iberian peninsula, of whale oil and products and a little potash to England, of some provisions to the West Indies, along with the sale of ships, and, in wartime, the sale of supplies to the British forces. The large supply of bills on London from the last-named source may largely explain the lack of activity in exporting whale oil between 1739 and 1762 which the author notes. The Hancocks' trade with the middle and southern colonies was slight.

Because of the notoriety attached to the subject, such details concerning smuggling as are revealed by the letter-books will be of interest, though here again they disclose nothing novel. The smuggling usually involved import of goods from the Continent either directly from Holland or indirectly through the West Indies. If not

readily concealable, goods were likely to be unloaded at some out-of-the-way point before entering Boston Harbor. His uncle's lack of scruples in the matter may well explain John Hancock's activities in this field.

Like other wealthy colonial merchants, Thomas Hancock was also interested in ventures in other fields, such as manufacturing, real estate, and moneylending. Partnerships or temporary associations usually helped to distribute the risks; even in the case of ships he chose a share interest rather than full ownership. He relied upon foreign firms to act as his agents abroad and was constantly importuning them for credit. The comparatively small scale of operations and the complete derangement of mercantile affairs arising from wars are points well emphasized in this very readable narrative.

CHESTER W. WRIGHT
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O comércio português no Rio da Prata (1580–1640). By A. P. CANABRAVA. ("História da Civilização Americana," Bol. XXXV, No. 2.) São Paulo: Faculdade de Filosofia, Ciências e Letras, Universidade de São Paulo, 1944. Pp. xv+174.

This is a doctoral dissertation accepted by the Faculty of Philosophy, Sciences and Letters of the University of São Paulo. In my opinion, it compares favorably with all but a few outstanding theses produced by American Ph.D.'s in the field of Latin-American history. To investigate the rise of the River Plate trade Dr. Alice Piffer Canabrava has utilized many volumes of published documents and monographs in five languages, and the results reflect her understanding of the subject and skill in handling the data. In the Preface Dr. Affonso de E. Taunay praises the author for her assiduous labors in the libraries of São Paulo and Rio de Janeiro, but it seems to me that historians should force their students at least to acknowledge the existence of manuscript materials, however good the reason for failure to consult the archives.

In the period under study Buenos Aires had no economic importance, except as an entrepôt for European and Brazilian goods passing to the interior and as an exit for money and specie seeping out of Peru. Most of the time the paths of inland commerce connecting Buenos Aires with Peru and Chile were legally barred, in deference to the vested interests of Lima and Seville whose profits depended upon the closed trade and treasure routes through the Caribbean and the Isthmus. In 1618 the laws were relaxed sufficiently to permit limited importation from Spain and transshipment through Buenos Aires to the hinterland. Practically, this concession meant little, for both before and after this date nearly all of the River Plate commerce consisted of contraband trade conducted by or for Portuguese merchants, Spanish public officials, clerics, and merchants. Since the Portuguese controlled practically all of the available shipping and as a rule monopolized the slave trade (through possession of the *assiento*), they were in the first instance the principal offenders. Under the guise of supplying the Spanish possessions with Negroes, the Portuguese shipped and transshipped from Brazil vast quantities of non-Spanish merchandise. Tucumán, Charcas, and Córdoba became flourishing markets for the exchange of silver from Potosí and slaves to work the mines.

The year 1640 ended the sixty-year union of the two crowns. Although subsequently the Portuguese traders found in Spanish territory were treated with increasing harshness, the Dutch had already successfully challenged the commercial supremacy of Portugal in the South Atlantic, and Buenos Aires languished through its inability to maintain contacts with the overseas trade areas. The customs house at Córdoba was strengthened in order to isolate Peru from the River Plate basin. But one of the lasting effects of these efforts to hamstring the economic development of Buenos Aires was a "separatist" movement which in 1777 gave the eastern settlements their own *audiencia* (an administrative and judicial organization) and freedom from some of the restraints imposed by their former subordination to the viceroy of Peru.

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The Common Interest in International Economic Organisation. By J. B. CONDLIFFE and A. STEVENSON. Montreal: International Labour Office, 1944. Pp. iii+135. $1.50.

"Are positive national policies designed to maintain employment and improve the lot of the ordinary citizen compatible with an increased volume of international trade?" This is the question to which the authors of this book

have addressed themselves. Their answer is affirmative, but with qualifications as respects both national and international policies.

In the domestic field the authors waste no time in arguments on the respective merits of capitalism and a planned economy. For the present most countries will have no choice. Circumstances will force them to use a mixed system of private enterprise and public control. "Debate on the merits of free enterprise in a self-adjusting market economy is largely academic—a repetition of irrelevant conclusions from past experience." In a world of rigidities induced by collective bargaining, of fixed costs and product differentiation, the swings from prosperity to depression are likely to be violent and will not be self-correcting. Hence governments will act to guarantee a minimum of economic security to wage-earners, farmers, and small businessmen.

In both mature and industrially backward countries national and social objectives dominate policy. But national action is inevitably restrictive rather than expansive. Experience has shown that restrictive national action is incapable of providing full employment with a rising standard of living. But international control of national economic policies is impracticable, hence there remains only the alternative of national action co-ordinated by international consultation.

Such, in skeleton, is the argument which the authors have developed in skilful and convincing fashion. In the final section, "International Co-ordination of National Policies," they describe the progress already made in the fields of food and agriculture, international monetary arrangements, commercial policy, and investment.

American policy, because of the predominant economic power of the United States, will be a critical factor, particularly in foreign trade and investments. The authors hold that bilateral tariff bargaining will be helpful but inadequate for the major tasks of eliminating quotas and discriminatory tariffs and of harmonizing the relations of free-enterprise economies and those practicing state trading. The authors mention proposals for multilateral tariff reduction, but evidently without strong conviction.

The informed reader will find that this book traverses familiar ground. Much that is said here has been said before, if not as well. But repetition is a necessary means of raising the level of economic literacy. One of the tragedies of our time, say the authors, "has been the growing conflict between social reform and internationalism." They have shown how this conflict can be resolved.

PERCY W. BIDWELL

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International Currency Experience: Lessons of the Inter-war Period. By ECONOMIC, FINANCIAL, AND TRANSIT DEPARTMENT, LEAGUE OF NATIONS. Princeton: League of Nations (New York: Columbia University Press), 1944. Pp. 249. $3.25.

This book is international monetary analysis at its best. Good monetary analysis requires a solid theoretical structure if it is to provide satisfying explanations and illuminating indications of policy. But at its best this theory springs immediately from the context of history, institutions, and statistical data to which it pertains. Ragnar Nurkse gives us this intricate factual context in a discriminating and lively fashion, and he writes the analysis legibly and convincingly. Indeed, in this rather small volume one finds epitomized not only the author's rich experience and analytical powers but also the net yield of a large literature on interwar monetary history, including the League's excellent publications under A. Loveday's direction.

One of the central themes of this engrossing account is the gradual change which came to pass, in the two decades between the wars, in the character of the international means of settlement—a metamorphosis of gold and other mediums from "conveyors" or "transmitters" of economic and monetary change to their being instead "cushions" or "buffers." Another central theme is the adjustments made by individual countries to altered conditions in the supply of and demand for international means of payment. In passing, it is worthy of note that the use of the generalized concept of international currency is itself a novel and vitalizing approach. If world supply-and-demand conditions change, adjustments by individual countries can take the form of deflation, devaluation, or regulation of exports and imports. The discussion of resort to these devices involves also the first theme—the drift of policy toward insulation of national economies. But the two central themes are not pursued so hotly as to preclude adequate attention to other phenomena in the whole composite of monetary history.

Beginning with an initial chapter on the global supply-and-demand conditions for international currency, the study proceeds to the threatening shortage of gold in the twenties, which accounted for the general movement toward the gold-exchange standard. "Economy of gold" had nothing to do with alternative uses of resources devoted to gold-mining, but "simply the release of gold stocks from the cover function for the international currency function." The movement to economize gold in this sense met its fate when in 1928 France decided to repatriate her capital in the form of gold.

The genesis of the sterling area (chap. iii) lay in an international run on international currency attending the financial crisis of 1931. But while it originated in the supply-and-demand situation for international means of payment, the real *raison d'être* of the sterling area was the desire to escape the consequences of a rigorous adherence to gold-standard procedure. Aside from their natural political affinities, the sterling-area countries were motivated by the following, in attaching their currencies to the pound: protecting export prices by safeguarding their competitive positions in the British markets and capturing the advantage arising from the relatively smaller decline of money income and economic activity in the United Kingdom than elsewhere. International currency was thus being reconstituted to cushion rather than to transmit, especially in a setting of depression.

But the very essence of central banking has been the introduction of some degree of "monetary autarchy" through partial or complete neutralizing of movements of international currency (chap. iv). It is questionable whether the "rules of the game" of the gold standard were rigorously practiced even before 1914; and the twenties and thirties witnessed further departures, even in nominal gold-standard countries. Thus the United States neutralized most of the gold influx of 1920–24 and 1933–37; the same or similar policies were pursued by England and France and became common in the latter decade. The case for possessing and then sacrificing substantial reserves of international currency rests upon maintaining the flow of money incomes in a threatening depression: at home, by holding imports up to the level of exports instead of scaling down exports to the level of imports; and abroad, by supporting foreign exports and hence the levels of foreign incomes. The equilibrium secured by gold-standard rules of the games would transmit falling incomes at home to low prices and eventually to low incomes abroad.

Exchange fluctuations (chap. v) are an alternative to stable exchanges backed by reserves of international currency. Freely fluctuating exchanges, in a literal sense, permit a capital outflow without repercussions on domestic money supply; but they have not been tolerated by more than a few countries and then only transitorily. During the thirties countries which avoided exchange control by devaluation increased their exports; but in contrast to the common belief, the increases went largely to other devaluing countries. At the end of the devaluation cycle, the principal nonexchange-control currencies had returned to relations not far different from their original positions. A concerted attack upon unemployment by all countries would have avoided the necessity of this hesitant cycle and its penalties on the latecomers in devaluation.

Chapter vi, dealing with exchange stabilization funds, presents a closely reasoned analysis of this device by W. A. Brown, Jr. He concludes with the observation that, the more closely the compromise between national economic autonomy and internationalism approaches the former limit, the less suitable are stabilization funds relative to exchange control; the more close the approach to internationalism, the less suitable are such funds relative to an international gold standard managed by a central bank.

Exchange control is another device for coping with a shrinkage in the supply of international currency and another and final step in converting the international currency from a transmitter to a buffer. Originally introduced as a means of preventing capital flights, exchange control persisted chiefly to support overvalued exchange rates. The allocation of exchange to importers almost inevitably involves discrimination among countries and commodities and frequently among firms; and the same types of discrimination obtain under bilateral clearings, which furthermore destroy the consistency of international exchange rates. Per se exchange control is unique, among trade regulation devices, in controlling the flow of capital. It shares with all such devices the character of state intervention to plan foreign trade, to secure improvement in its terms, and to utilize it as a means of obtaining full employment.

In concluding chapters Nurkse sets forth a general philosophy of international exchange.

The great merit of the gold standard lay in its stable exchange rates, but the recognition of full employment as the overriding purpose of economic policy precludes the maintenance of stable exchange at the expense of domestic incomes. Freely fluctuating exchanges do not afford a dependable solution; "neutralizing" the monetary effects of gold-flows does not eliminate price and income effects; and the whole gamut of direct regulation of trade ad payments is discriminatory and constrictive upon trade. Fundamentally the maintenance of international stability depends upon reduction in the dependence of agricultural countries on one or a few staples, upon the softening of inequalities of wealth among countries, and upon the elimination of depressions in the centers which supply the international currency. "It is only under conditions of active home demand and full domestic employment that countries can be expected to welcome imports and to regard their exports, not as a means of providing unemployment, but as an inevitable cost of the foreign goods desired" (p. 208).

Throughout the study, Nurkse has effected a most profitable synthesis of the older "price-specie-flow" theory and the newer and more popular income-reaction analysis.[1] The proof of the pudding is that this synthesis provides an ordering principle in the otherwise confused maze of the interwar decades.

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Ten Years of Controlled Trade in South-eastern Europe. By N. MOMTCHILOFF. ("National Institute of Economic and Social Research, Occasional Papers," No. 6.) Cambridge: At the University Press; New York: Macmillan Co., 1944. Pp. 85. $1.75.

This small book tries to summarize the commercial policies of six southeastern European states—Hungary to Greece and Turkey, inclusive—through the period of controlled trade beginning in 1931 and running into the war period, when exports rather than imports were restricted. The story is partly chronological and partly by subject, with some details for particular products or countries. The author seems not wholly consistent, e.g., in his qualified approval of clearing agreements and his criticism of exchange control, of which clearings form one element. He finds small demand in western Europe for the cereals of southeast Europe, but blames it on increased world production rather than on the autarchic policies which were the immediate cause of the surplus.

Part II (pp. 55–85) deals with the future. Its first subhead is "Controls Likely To Stay"; and then the author comes out for "simplification" by superimposing a regional trade control. If the "relief-giving Powers" would insist on a regional office, it would do much to promote cooperative action and to prevent these states from reverting to separatist policies. Greater amounts of relief would presumably be given to a regional bloc than to separate states. As the regional exchange control would be tied to the sterling bloc, doubtless the British would take a special interest—they have begun to do so by publishing the author's booklet. "A far-reaching coordination of the customs regimes . . . . ought to become a practical possibility."

The author's main contention is that the individual states of southeastern Europe cannot save themselves by individual action. The intra-regional trade of the six states is "strikingly modest," so regional organization cannot save them, though it would increase their bargaining power. They need the active aid of the great powers in "carrying out the rehabilitation of Europe."

But if they receive such aid, it is not clear why a regional organization is necessary. The author gives no consideration to the objections to regionalism, economic or political, and assumes rather than attempts to establish that the six states named should form a region. It is not a convincing book.

BENJAMIN B. WALLACE
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Personnel Relations: Their Application in a Democracy. By J. E. WALTERS. New York: Ronald Press Co., 1945. Pp. xx+547. $4.50.

The author brings a rich background to the task of describing personnel relations in a democracy. His former service with Purdue

[1] Theoretically inclined readers may wish to pursue the discussion of the "equilibrium rate" involved in this synthesis and occasioned by Nurkse's definition (cf. pp. 124–27) in terms of full employment. See the articles and notes by Gottfried Haberler and Alvin Hansen in the *Review of Economic Statistics*, Vol. XXVI, No. 4 (November, 1944); and Ragnar Nurkse, *Conditions of International Monetary Equilibrium* ("Essays in International Finance," No. 4 [Princeton: Princeton University Press, 1945]).

University as professor of personnel administration and director of personnel, as well as his experience as a personnel manager and consultant in industry, have kept him in close touch with all phases of personnel and labor relations. He has endeavored to include in the book as much factual information as possible on this currently important subject.

In an important introductory chapter the value of good personnel relations in a democracy is stressed. The first section of the book discusses the history, development, and importance of labor unions. The second subdivision presents the attitude and approach of management toward the solution of industrial-relations problems. The techniques of personnel relations are treated in the following section. About half of the book is here devoted to a discussion of policies, plans, and methods of personnel administration, and this discourse includes treatment of almost all modern personnel practices found in industry. Each of the twelve chapters in this section is devoted to a single subject such as "Employment," "Job Evaluation," "Personnel Rating," "Safety," or "Employee Service Work." The last major topics of the book are concerned with governmental regulation of employment and labor-management cooperation.

The chief value of this book and the justification for it as another complete work on the subject is its timeliness. Most of the worth-while personnel procedures developed during the war have been collected and rather completely recorded. While much of the wartime labor legislation and regulation may cause parts of the book to become obsolete in a relatively short time, there is much merit in the author's attempt to assist in the preservation of recent development in personnel relations.

Credit is also due the author for endeavoring to show the value of the democratic way of life in approaching personnel relations. Most readers will find, however, that the frequent reference to the democratic way of operating and managing a business enterprise is not entirely satisfactory, mainly because democratic management in industry is difficult to define. The author's suggestions for the attainment of industrial democracy, which include "more voting, more education . . . . less arguments," are altruistic, but they offer little that is new for the accomplishment of democracy in business. Nevertheless, the reader will agree with the general theme that our country needs more extensive use of effective personnel-relations policies and practices.

While the book is crowded with detail and profuse with examples of personnel plans used by various companies and agencies, there appears to be too little consideration of the psychological and sociological aspects of personnel work. Discussions of the various topics assume more of the style of reports on actual practice than that of analyses of the principles of human relations in business.

The organization of the book is rather unusual for a complete work in this field. The subject of labor unions is probably discussed in the first major chapter because of the current interest in employee organizations. This section apparently overlooks and neglects the large number of unorganized workers as "determinants of personnel relations." Unlike Walters, most writers in the field present a complete discussion of personnel methods and techniques before considering employee representation, which includes the subject of labor unions. Even though it is tremendously important, this subject of unions and labor negotiations comprises a greater portion of the book than is probably justified for a general work on the subject of personnel problems.

Other weaknesses in the organization of the book can be noted, such as the placing of the chapter on the individual after the chapters of employment, training, personnel rating, and turnover. The orthodox and more logical procedure is to discuss individual differences, capacities, personality traits, and similar subjects prior to the presentation of the personnel methods which deal with these factors. While there may be good reasons for the author's arrangement of his material, the reader is plunged into discussions of labor relations and other difficult subjects without adequate preparation in the fundamental principles of the subject. This might cause some difficulty for a student in the field and it contributes further to the overemphasis of the problems of organized workers.

The book will be well received by many personnel workers, especially as a reference and source of information about current practice. It presents the points of view of management, labor, and the government and makes a sincere appeal for their full co-operation in all personnel relations.

JOSEPH W. TOWLE
Northwestern University

Taxation of Corporate Income. By CHARLES JOHN GAA. Urbana: University of Illinois Press, 1944. Pp. x+285. $4.00.

In this volume the author undertakes to build up a "logical accounting" basis for the measurement of income, and to make "an historical comparison of that basis with accounting practice and literature and with Federal income tax methods of computing taxable net income."

Following a brief review of (1) the economic concept of income as developed by Fisher and Haig, (2) the accounting concept, as stated by Finney, Hatfield, Paton, and Montgomery, and (3) the income-tax concept as set forth in *Eisner v. Macomber*, the author concludes that if Haig's economic concept of income is modified "to fit practical business conditions and difficulties," it becomes a logical accounting concept which will also be satisfactory for income-tax purposes. The all-purpose definition of income thus arrived at is "*the net realized increase of economic power from all sources, measured in terms of money between two points of time, excluding additional investment and withdrawals of capital.*"

The remaining two hundred pages of the volume are devoted to an analysis of the income-tax treatment, from 1913 to 1939, of each of the elements of this definition. Successive chapters deal with periodicity, income realization, nonrecurring items, the accounting entity, gross income items, deduction items, amortization, and inventories. The significant developments in the statutes and regulations are reviewed and criticized in the light of tax-court decisions and contemporary accounting literature. Some provisions and methods used in the income-tax system over this period are found to be objectionable, such as the disallowance of some "legitimate" accruals, the allowance of percentage depletion, and, surprisingly enough, the denial of a deduction for federal income taxes. The author finds, however, that "most of the tax system conforms with accounting practice."

Those who accept Haig's concept of income will find little to quarrel with in Gaa's definition of that term. On the other hand, it may be questioned whether the rephrasing of this concept has contributed much to either the theory or the practice of corporate-income taxation. Gaa admits that there must be deviations even from his standards of income measurement. But for the determination of what deviations should be recognized as "allowable," he can only suggest resort to "some sort of Federal commission on accounting and tax matters."

In his historical survey of the methods of computing taxable net income prescribed by federal statutes and regulations and by the courts the author has made a contribution to income-tax literature. This part of the study suffers, however, from the author's propensity to place too much emphasis upon the separate sections of the statute and too little upon the tax structure as a whole. This emphasis is frequently confusing to the reader and in several instances appears to have confused the author as well.

For example, in discussing the disallowance of federal excess-profits taxes as a *deduction from income* under the War Income Tax of 1917, he concludes that "this change was probably induced by the desire to obtain added revenue for war use" (p. 171). Yet a few pages before, in discussing *credits against income*, he quotes from section 1211 of the same act, which provided "that in assessing income tax the net income embraced in the return shall also be credited with the amount of excess profits tax . . . . assessed for the same year" (p. 160).

This is not a book that is likely to have a widespread appeal among students of taxation. Those primarily interested in the concept of taxable income will find more penetrating discussions of this subject in Henry Simons' *Personal Income Taxation* and in Roswell Magill's *Taxable Income*. On the other hand, those who are interested in the more technical aspects of income computation for tax purposes will find in the tax services handier and more up-to-date sources of such information.

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The Regional Economy of New Brunswick, Appendix A: A Study Prepared for the Committee on Reconstruction. By J. R. PETRIE. Fredericton: New Brunswick Committee on Reconstruction, 1944. Pp. 77–471.

This study traces the economic development of New Brunswick from its "golden age" of prosperity through the long period of economic stagnation to the prosperous present. There is a short description of the economy at Confederation (1867), when the forces that shook it were already gathering; an analysis of the long-run

trend from 1871–1941 in relation to the nation's economy; a detailed analysis of the regional economy in 1941, a year in which the war's full impact had not yet been felt but which coincided with the latest census; a discussion of the forces which have shaped the economy; and a general statement of the war's impact upon it.

With 226 tables, several of which might have been omitted, and 13 charts, *The Regional Economy of New Brunswick* is to a very considerable extent a straight statistical compilation. Much of the textual analysis contains little that is not familiar to those who have followed the region's economic development. As an appendix to the report of a provincial committee on reconstruction, however, the study should prove of unquestionable value. Petrie has brought together for the first time a mass of statistical data; he has provided, as he says in the Preface, the framework for further detailed studies.

In the relatively short chapter, "The Forces Which Have Shaped the New Brunswick Economy," no pretense is made to analyze the complicated causes of the region's long-term economic maladjustment. Undoubtedly, geography, world-wide economic and political developments, and the tariff, monetary, and other policies pursued by the federal government have been important. A comprehensive analysis of these "forces," and the significance of each was perhaps outside Petrie's scope; but one wishes the Committee on Reconstruction had undertaken an admittedly difficult yet still necessary task. For, as Petrie has forcibly shown, the war's impact on the regional economy has caused "but a minor deviation from the secular trend." If New Brunswick's problems have not been aggravated by an even greater concentration of capital in central Canada, they remain at least as in pre-war days.

The region's economic future rests, Petrie believes, upon industrial specialization in the direction of forestry and food-production, intensive exploitation of the local market, and disposal of surplus production abroad. His position is unassailable, for New Brunswick has few resources and is essentially an export area. But salvation comes at a price. Even limited prosperity demands measures to promote international trade and "to ensure private enterprise a competitive chance of survival." To this latter end, two kinds of government intervention are required in Canada: "the one aimed at the restoration and maintenance of competition in some industries, the other directed towards complete regulation or government ownership in industries where competition cannot or should not be enforced." Those who steer without the compass of economic fact may be expected, as they will, to find these principles, and the policies necessary to implement them, unacceptable. A second area of controversy is also present. Both federal and provincial spheres of influence are involved. Tariff and fiscal policy, as well as the regulation of trade and commerce, lie within federal jurisdiction; resource development is primarily a provincial matter. Economic reconstruction in New Brunswick requires not merely that the respective governments cooperate but presumably an effective concentration of monetary and fiscal authority in the federal government. Regardless of any potential economic development in the region, it is considered "strictly essential," moreover, that there should be an immediate revision of the existing allocation of governmental services. In 1940 the Royal Commission on Dominion-Provincial Relations recommended the reallocation of certain social and welfare services, revision of the tax system, and the adoption of a system of national adjustment grants. So far as New Brunswick is concerned, the war is shown to have strengthened the case for an even more sweeping revision of powers and responsibilities between the Dominion and its constituent provinces. As Petrie says, it is "fundamental not only to emergency works programs, but to the whole long-term plan for economic development" in the region.

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